SERVICE MANUAL

SM0063

Mod. PW1 A
42PMA300EZ

Caution

Be sure to read this manual before servicing. To assure safety from fire, electric shock, injury, harmful radiation and materials, various measures are provided in this Plasma display.
Be sure to read cautionary items described in the manual to maintain safety before servicing.

Serviceman Warning

1. Since Panel Module and Front Filter are made of glass, handling of the broken Module and Filter shall be handled carefully in order not to be injured.
2. Replacement work shall be started after the Panel Module and the AC/DC Power supply become sufficiently cool.
3. Special care shall be taken to the display area in order not to damage its surface.
4. The Panel Module shall not to be touched with bare hand to protect its surface from stains.
5. It is recommended using clean soft gloves during the replacement work in order to protect not only the display area of the Panel Module but also the serviceman himself.
6. The Chip Tube of Panel Module (located upper left of the back) and flexible cables connecting Panel glasses to drive circuit PWBs are very weak, so sufficient care should be taken so as not to break them. If you break the Chip Tube, the Panel will not display any more.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

Plasma Display

October 2004

PRECAUTIONS

● How to clean the plasma screen panel of the monitor

Before cleaning the monitor, turn off the monitor and disconnect the power plug from the power outlet.
To prevent scratching or damaging the plasma screen face, do not knock or rub the surface with sharp or hard objects. Clean the screen with a soft cloth moistened with warm water and dry with a soft cloth. If it is not enough, then use a cloth with mild detergent. Do not use harsh or abrasive cleaners.

● How to clean the cabinet of the monitor

Use a soft cloth to clean the cabinet and control panel of the monitor. When excessively soiled dilute a neutral detergent in water, wet and wring out the soft cloth and afterward wipe with a dry soft cloth.
Never use acid/alkaline detergent, alcoholic detergent, abrasive cleaner, powder soap, OA cleaner, car wax, glass cleaner, etc. especially because they would cause discoloration, scratches or cracks.

1. Features

● Large-screen, high-definition plasma display panel

The 42-inch color plasma display panel, with a resolution of 852 (H) x 480(V) pixels, creates a high-definition, large-screen (aspect ratio : 16:9) and low-profile flat display. Free from electromagnetic interferences from geomagnetic sources and ambient power lines, the panel produces high-quality display images free from color misconvergence and display distortion.

● High Performance Digital Processor

A wide range of personal computer signals can be handled, from 640 x 400, 640 x 480 VGA to 1600 x 1200 UXGA.(RGB Analog input)

● Easy-to-use remote control and on screen display system

The remote control included eases the work of setting display controls. Further, the on-screen display system, displays the status of signal reception and display control settings in an easy-to-view fashion.

● Power saving system

The International ENERGY STAR® power saver feature saves power consumption automatically when input signals are not available.
When connected to a VESA DPMS-compliant PC, the monitor cuts its power consumption while it is idle.

● TruBass SRS (●) TruBass

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- One mini D-sub terminal and one DVI-D terminal for RGB input
  The D-sub terminal can also receive the RGB-component by On-Screen Display control.
- One composite/S.video input terminal and two component video input terminals added with VIDEO board
  One component input is possible to switch to RGB signal input from the Menu screen.
- One SCART terminal for the signal of the European standard added with VIDEO board
  It operates as composite/S.video input and RGB input terminal, or composite video output terminal.
- One composite video output terminal as a monitoring output added with VIDEO board
- Simple type of the remote control

2. Specifications

Panel	**Display dimensions**	Approx. 42 inches (920 (H) x 518 (V) mm, diagonal 1059mm)
	Resolution	852 (H) x 480 (V) pixels
Net dimensions (excluding Speakers/Stand)		1030 (W) x 636 (H) x 91 (D) mm
Net weight (excluding Speakers/Stand)		33.2kg
Ambient conditions	**Temperature**	Operating : 5℃ to 35℃, Storage : -15℃ to 60℃
	Relative humidity	Operating : 20% to 80%, Storage : 20% to 90% (non-condensing)
Power supply		AC100 - 240V, 50/60Hz
Power consumption/at standby		310W / <3W
Audio output		12W + 12W (6Ω)
(RGB input)		
Input signals	**Input terminals**	RGB2 analog RGB input terminal (D-sub 15-pin) RGB2 audio input terminal (3.5mm Stereo Mini Jack)
	Video signals	0.7 V/1.0 Vp-p, analog RGB (Recommended Signal) 480i, 576i, 480p, 576p, 1080i/50, 1080i/60, 720p/60
	Sync signals	H/V separate, TTL level [2KΩ] H/V composite, TTL level [2KΩ] Sync on green, 0.3 Vp-p [75Ω]
(Video input)		
Input signals	**Input terminals**	AV1: composite video input terminal (RCA) AV1: Y PB PR video input terminal (RCA) AV1: L/R audio input terminal (RCA) AV2: composite video input terminal (RCA) AV2: Y/G PB/B PR/R video input terminal (RCA) AV2: L/R audio input terminal (RCA) AV3: composite video input terminal (RCA) AV3: S video input terminal (RCA) AV3: L/R audio input terminal (RCA) AV4: composite video / S video / RGB / L/R audio input terminal (Scart)
	Video signals	AV1: PAL,SECAM,NTSC4.43,NTSC3.58 AV1: 480i, 576i, 480p, 576p, 1080i/50, 1080i/60, 720p/60 AV2: PAL,SECAM,NTSC4.43,NTSC3.58 AV2: 480i, 576i, 480p, 576p, 1080i/50, 1080i/60, 720p/60, RGB AV3: PAL,SECAM,NTSC4.43,NTSC3.58 AV4: PAL,SECAM,NTSC4.43,NTSC3.58 AV4: RGB
Video output Signal		OUTPUT (MONITOR): composite video monitor-output terminal (RCA) OUTPUT (MONITOR): L/R audio monitor- output terminal (RCA) AV4: composite video / L/R audio monitor-output terminal (SCART)

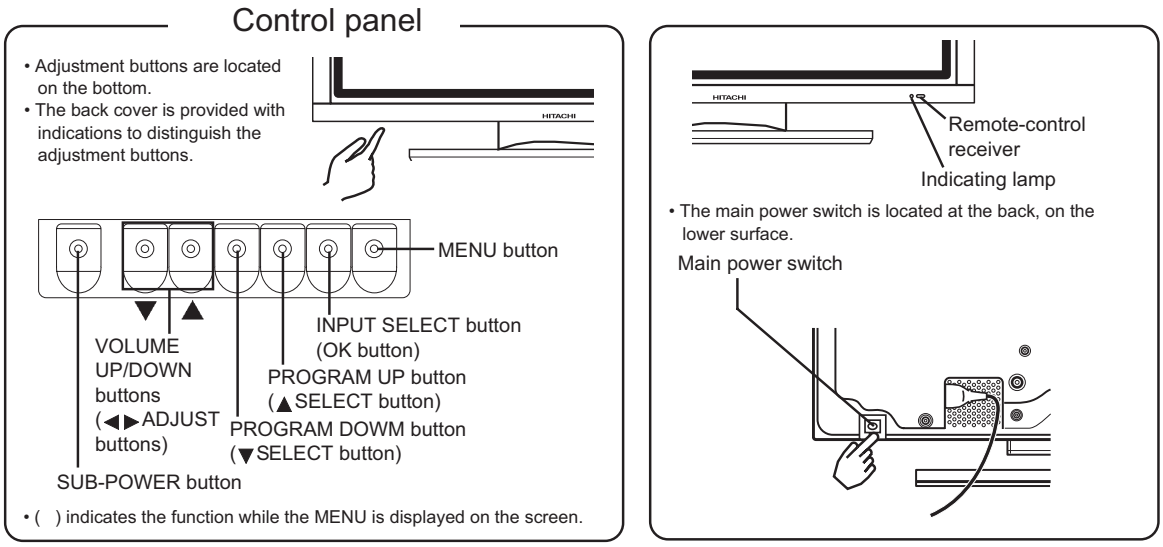
Applicable video signals for each input terminal

Terminal	RCA/SCART				D-sub	
Signal	CVBS	S-video	Component	RGB	RGB	Component
AV1	○		○			
AV2	○		○	○		
AV3	○	○				
AV4	○	○		○		
RGB1						
RGB2					○	○

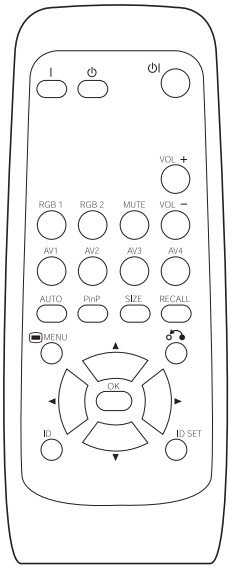
(○:Available)

3. Component names

[Main unit]


Control panel
• Adjustment buttons are located on the bottom.
• The back cover is provided with indications to distinguish the adjustment buttons.
HITACHI
MENU button
VOLUME UP/DOWN buttons (◀▶ADJUST buttons)
INPUT SELECT button (OK button)
PROGRAM UP button (▲SELECT button)
PROGRAM DOWM button (▼SELECT button)
SUB-POWER button
• ( ) indicates the function while the MENU is displayed on the screen.
HITACHI
Remote-control receiver
Indicating lamp
• The main power switch is located at the back, on the lower surface.
Main power switch

[Remote control]



4. Service points

● Lead free solder

This product uses lead free solder (unleaded) to help preserve the environment. Please read these instructions before attempting any soldering work.

Caution: Always wear safety glasses to prevent fumes or molten solder from getting into the eyes. Lead free solder can splatter at high temperatures (600˚C).

■ Lead free solder indicator

Printed circuit boards using lead free solder are engraved with an "F."

■ Properties of lead free solder

The melting point of lead free solder is 40-50˚C higher than leaded solder.

■ Servicing solder

Solder with an alloy composition of Sn-3.0Ag-0.5Cu or Sn-0.7Cu is recommended.
Although servicing with leaded solder is possible, there are a few precautions that have to be taken. (Not taking these precautions may cause the solder to not harden properly, and lead to consequent malfunctions.)

Precautions when using leaded solder

- Remove all lead free solder from soldered joints when replacing components.
- If leaded solder should be added to existing lead free joints, mix in the leaded solder thoroughly after the lead free solder has been completely melted (do not apply the soldering iron without solder).

■ Servicing soldering iron

A soldering iron with a temperature setting capability (temperature control function) is recommended.
The melting point of lead free solder is higher than leaded solder. Use a soldering iron that maintains a high stable temperature (large heat capacity), and that allows temperature adjustment according to the part being serviced, to avoid poor servicing performance.

Recommended soldering iron:

- Soldering iron with temperature control function (temperature range: 320-450˚C)

Recommended temperature range per part:

Part	Soldering iron temperature
Mounting (chips) on mounted PCB	320˚C±30˚C
Mounting (chips) on empty PCB	380˚C±30˚C
Chassis, metallic shield, etc.	420˚C±30˚C

The PWB assembly which has used lead free solder

(1) FILTER PWB, SW PWB, LED/RECEIVER PWB, TACT SW PWB, SP TERMINAL(L/R) PWB
(2) AUDIO PWB, JOINT PWB
(3) VIDEO PWB
(4) FORMATTER PWB
(5) POWER BOARD

5. Adjustment

● How to get to Adjustment mode

Using the front control buttons with the set turned off (standby) can activate it.

Press the SUB-POWER(⏻) button, INPUT SELECT(⏎) button and ▼ button at the same time, and hold for more than 5 seconds.

The set turns on in adjustment mode with OSD.

● Changing data and Selecting Adjustment code

When the set is in adjustment mode, the cursor ◄ , ► , ▲ , ▼ and OK buttons of the remote control or front panel may be used as the adjustment keys.

▲ , ▼ buttons are used for selecting adjustment code.

◄ , ► buttons are used for changing data values.

OK button is used for confirming the data.

After finishing the necessary adjustment press MENU button. Adjustment mode is released and the set returns to normal condition.

● Memory Initialize operation

NOTE: The execution of this function returns the adjustment codes to the preset values, therefore, adjustment data will be lost.

Procedure

(1) Enter Adjustment Mode.

(2) Select MEMORY INIT adjustment code (No.744) and change the data value from 0 to 1.

(3) Activate MEMORY INIT by pressing OK button for more than 3 seconds.

(4) Select No.374 and change data value from 1 to 0.

(5) Check that the receiving channel goes to AV1. Unit is set to preset values.

● Service adjustment items by I^2C-bus control

O : Should be adjusted
Δ : Should be followed previous data

Adj. No.	Function		Maximum Value	Default	Changed Component			
	Adjust Items	Mode			Formatter PWB	VIDEO PWB	TUNER PWB	PDP PANEL
0	R DRIVE1 [TV/VIDEO/DSUB-COMP]	COOL	255	224	Δ			O
1	G DRIVE1 [TV/VIDEO/DSUB-COMP]	COOL	255	224	Δ			O
2	B DRIVE1 [TV/VIDEO/DSUB-COMP]	COOL	255	224	Δ			O
3	R DRIVE2 [TV/VIDEO/DSUB-COMP]	NORMAL	255	224	Δ			O
4	G DRIVE2 [TV/VIDEO/DSUB-COMP]	NORMAL	255	224	Δ			O
5	B DRIVE2 [TV/VIDEO/DSUB-COMP]	NORMAL	255	224	Δ			O
6	R DRIVE3 [TV/VIDEO/DSUB-COMP]	WARM	255	224	Δ			O
7	G DRIVE3 [TV/VIDEO/DSUB-COMP]	WARM	255	224	Δ			O
8	B DRIVE3 [TV/VIDEO/DSUB-COMP]	WARM	255	224	Δ			O
9	R DRIVE4 [TV/VIDEO/DSUB-COMP]	BLACK & WHITE	255	224	Δ			O
10	G DRIVE4 [TV/VIDEO/DSUB-COMP]	BLACK & WHITE	255	224	Δ			O
11	B DRIVE4 [TV/VIDEO/DSUB-COMP]	BLACK & WHITE	255	224	Δ			O
12	R DRIVE1 [DVI-PC/DVI-STB/DSUB-RGB]	COOL	255	224	Δ			O
13	G DRIVE1 [DVI-PC/DVI-STB/DSUB-RGB]	COOL	255	224	Δ			O
14	B DRIVE1 [DVI-PC/DVI-STB/DSUB-RGB]	COOL	255	224	Δ			O
15	R DRIVE2 [DVI-PC/DVI-STB/DSUB-RGB]	NORMAL	255	224	Δ			O
16	G DRIVE2 [DVI-PC/DVI-STB/DSUB-RGB]	NORMAL	255	224	Δ			O
17	B DRIVE2 [DVI-PC/DVI-STB/DSUB-RGB]	NORMAL	255	224	Δ			O
18	R DRIVE3 [DVI-PC/DVI-STB/DSUB-RGB]	WARM	255	224	Δ			O
19	G DRIVE3 [DVI-PC/DVI-STB/DSUB-RGB]	WARM	255	224	Δ			O
20	B DRIVE3 [DVI-PC/DVI-STB/DSUB-RGB]	WARM	255	224	Δ			O
21	R DRIVE4 [DVI-PC/DVI-STB/DSUB-RGB]	BLACK & WHITE	255	224	Δ			O
22	G DRIVE4 [DVI-PC/DVI-STB/DSUB-RGB]	BLACK & WHITE	255	224	Δ			O
23	B DRIVE4 [DVI-PC/DVI-STB/DSUB-RGB]	BLACK & WHITE	255	224	Δ			O
24	Black Level(RGB_AMP)	TV/VIDEO	254	127				
25	Black Level(RGB_AMP)	PC	254	127				
26	Reference Amplitude(RGB_AMP)	TV/VIDEO	254	127				
27	Reference Amplitude(RGB_AMP)	PC	254	127				
28	Display for Max. Amplitude Level	Main	-	-				
29	Display for Max. Amplitude Level	SUB	-	-				
30	SUB_CONTRAST（RF）	MAIN	15	7				
31	SUB_CONTRAST (AV1)	MAIN/SUB COMPOSITE mode	15	7				
32	SUB_CONTRAST（RF）	SUB	15	7				
33	SUB_CONTRAST (AV4)	MAIN/SUB COMPOSITE mode	15	7				
34	SUB_COLOR（VIDEO-PAL/SECAM）	MAIN	15	10				
35	SUB_COLOR（RF-PAL/SECAM）	MAIN	3	8				
36	SUB_COLOR（VIDEO-NTSC）	MAIN	15	10				
37	SUB_COLOR（RF-NTSC）	MAIN	15	6				
38	SUB_COLOR（VIDEO-PAL/SECAM）	SUB	15	10				
39	SUB_COLOR（RF-PAL/SECAM）	SUB	3	8				
40	SUB_COLOR（VIDEO-NTSC）	SUB	15	10				
41	SUB_COLOR（RF-NTSC）	SUB	15	8				
42	TINT（VIDEO）	MAIN	63	33	Δ	O		
43	TINT（RF）	MAIN	63	33	Δ	O		
44	TINT（VIDEO）	SUB	63	33	Δ	O		
45	TINT（RF）	SUB	63	33	Δ	O		
46	S_B-Y_ADJ	MAIN	15	8				
47	S_R-Y_ADJ	MAIN	15	8				
48	S_B-Y_ADJ	SUB	15	8				
49	S_R-Y_ADJ	SUB	15	8				
50	BPF_Q (4.43MHz)	MAIN	3	3				
51	BPF_f0 (4.43MHz)	MAIN	3	1				
52	Y_DL (4.5MHz) For Asia	MAIN	10	5				
53	Y_DL (5.5MHz PAL/NTSC4.43) For Asia	MAIN	10	3				
54	Y_DL (5.5MHz SECAM) For Asia	MAIN	10	0				
55	Y_DL (6.0PAL/NTSC4.43) For Asia	MAIN	10	9				
56	Y_DL (6.0SECAM) For Asia	MAIN	10	9				
57	Y_DL (VIDEO PAL/NTSC4.43)	MAIN	10	6				
58	Y_DL (VIDEO SECAM)	MAIN	10	8				
59	Y_DL (VIDEO NTSC)	MAIN	10	6				
60	BELL_f0	MAIN	1	0				
61	Y_OUT_LEVEL (VIDEO)	MAIN	63	13				
62	Initialize function for EEPROM of Video PWB board		1	0				
63	Y_OUT_LEVEL (TEXT)	MAIN	63	0				
64	C_OUT_LEVEL (VIDEO)	MAIN	63	7				
65	Check condition of EEPROM of Video PWB board	0:Normal, 1:Abnormal(Fail or no assembly)	1	-				
66	C_OUT_LEVEL (TEXT)	MAIN	63	0				
67	Y_OUT_LEVEL (TEXT)	SUB	63	12				

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Adj. No.	Function		Maximum Value	Default	Changed Component			
	Adjust Items	Mode			Formatter PWB	VIDEO PWB	TUNER PWB	PDP PANEL
68	Y_OUT_LEVEL (VIDEO)	SUB	63	13				
69	Dispersion Time of Sustain current 0: 2 Times, 1: 4 times	For Dynamic (Day) mode	1	0				
70	C_OUT_LEVEL (TEXT)	SUB	63	7				
71	C_OUT_LEVEL (VIDEO)	SUB	63	7				
72	Dispersion Time of Sustain current 0: 2 Times, 1: 4 times	For Natural (Night) mode	1	1				
73	BPF_Q (4.43MHz)	SUB	3	3				
74	BPF_f0 (4.43MHz)	SUB	3	1				
75	Y_DL (4.5MHz) For Asia	SUB	10	5				
76	Y_DL (5.5MHz PAL/NTSC4.43) For Asia	SUB	10	2				
77	Y_DL (5.5MHz SECAM) For Asia	SUB	10	0				
78	Y_DL (6.0PAL/NTSC4.43) For Asia	SUB	10	7				
79	Y_DL (6.0SECAM) For Asia	SUB	10	10				
80	Y_DL (VIDEO PAL/NTSC4.43)	SUB	10	8				
81	Y_DL (VIDEO SECAM)	SUB	10	6				
82	Y_DL (VIDEO NTSC)	SUB	10	5				
83	BELL_f0	SUB	1	0				
84	C_TRAP_SW (COMB=OFF-PAL/NTSC4.43/NTSC3.58)	MAIN	1	0				
85	C_TRAP_SW (COMB=OFF-PAL/NTSC4.43/NTSC3.58)	SUB	1	0				
86	MVM（VIDEO）	–	1	0				
87	AFC_GAIN (AV00)	–	3	0				
88	AFC_GAIN (AV1)	–	3	0				
89	AFC_GAIN (AV2)	–	3	0				
90	AFC_GAIN (AV3)	–	3	0				
91	AFC_GAIN (AV4)	–	3	0				
92	S_INHBT	–	1	0				
93	S_ID	–	1	0				
94	S_GP	–	3	0				
95	S_V_ID	–	1	0				
96	BELL/HPF	–	3	3				
97	Cb offset1	MAIN	15	8				
98	Cr offset1	MAIN	15	8				
99	Cb offset1	SUB	15	8				
100	Cr offset1	SUB	15	8				
101	Sharpness Gain(VIDEO) PAL	MAIN	15	10				
102	Sharpness Gain(RF)	MAIN	5	8				
103	Sharpness EQ(4.5MHz)	MAIN	3	1				
104	Sharpness EQ(5.5MHz)	MAIN	3	1				
105	Sharpness EQ(6.0/6.5MHz)	MAIN	3	1				
106	Sharpness EQ(VIDEO)	MAIN	3	1				
107	Sharpness f0(VIDEO) PAL	MAIN	3	2				
108	Sharpness f0(RF)	MAIN	3	2				
109	Sharpness Gain(VIDEO) PAL	SUB	15	9				
110	Sharpness Gain(RF)	SUB	5	10				
111	Sharpness EQ(4.5MHz)	SUB	3	1				
112	Sharpness EQ(5.5MHz)	SUB	3	1				
113	Sharpness EQ(6.0/6.5MHz)	SUB	3	1				
114	Sharpness EQ(VIDEO)	SUB	3	1				
115	Sharpness f0(VIDEO) PAL	SUB	3	2				
116	Sharpness f0(RF)	SUB	3	2				
117	LPF	MAIN	1	0				
118	LPF	SUB	1	0				
119	SECAM D-Trap	MAIN/SUB	1	1				
120	FILTER SW(RF)	MAIN	1	0				
121	FILTER SW(RF)	SUB	1	0				
122	NTSC Comb(Comb off)	SUB	1	1				
123	HS Phase	MAIN	1	0				
124	HS Phase	SUB	1	0				
125	P/N ID	MAIN	1	0				
126	P/N ID	SUB	1	0				
127	Y/C_SEP_MODE (COMB=OFF-PAL)	–	3	0				
128	Y-Pf0	–	1	0				
129	Y-EQ_GAIN	–	3	2				
130	Y-EQ/N.C_LIM	–	3	0				
131	Y-LPF	–	1	0				
132	V-EMPH_GAIN	–	7	3				
133	V-EMPH_N.L	–	7	3				
134	V-EMPH_CORE	–	3	1				
135	D RANGE	–	1	0				

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Adj. No.	Function		Maximum Value	Default	Changed Component			
	Adjust Items	Mode			Formatter PWB	VIDEO PWB	TUNER PWB	PDP PANEL
136	DY_GAIN	MAIN NTSC mode	15	9				
137	DC_GAIN	MAIN NTSC mode	15	6				
138	VAP_GAIN	MAIN NTSC mode	7	5				
139	VAP_INV	MAIN NTSC mode	31	10				
140	YH_CORE	MAIN NTSC mode	3	0				
141	YHCGAIN	MAIN NTSC mode	1	1				
142	CDL	MAIN NTSC mode	7	3				
143	YNRK	MAIN NTSC mode	1	1				
144	YNRINV	MAIN NTSC mode	1	0				
145	YNRLIM	MAIN NTSC mode	3	1				
146	CNRK		1	1				
147	CNRINV		1	0				
148	CNRLIM		3	1				
149	YPFG		15	10				
150	SEPA_LEVEL	480i/576i	3	2				
151	SEPA_LEVEL	480p/576p	3	2				
152	SEPA_LEVEL	1080i_50	3	2				
153	SEPA_LEVEL	1080i_60/720p	3	2				
154	AUTO_FM/AM(D11-D8)	—	15	2				
155	AUTO_FM/AM(D7-D0)	—	254	189				
156	A2_THRESHOLD(D11-D8)	—	15	0				
157	A2_THRESHOLD(D7-D0)	—	254	112				
158	PRE_AM	Except 4.5MHz (Except Dual/Stereo mode)	254	17				
159	VOL_SCART1 (D15-D8)	—	254	115				
160	VOL_SCART1 (D7-D5)	—	7	0				
161	PRE_SCART	—	254	31				
162	PRE_FM	4.5MHz(JAPAN)	254	34				
163	PRE_FM	4.5MHz(Except BTSC-SAP mode)	254	32				
164	PRE_FM	4.5MHz(BTSC-SAP)	254	60				
165	PRE_FM	4.5MHz(Except KOREA-Dual/Stereo mode)	254	19				
166	PRE_FM	4.5MHz(KOREA－Dual/Stereo)	254	34				
167	PRE_FM	Except 4.5MHz(Except Dual/Stereo mode)	254	17				
168	PRE_FM	Except 4.5MHz(Dual/Stereo mode)	254	27				
169	PRE_NICAM	—	254	57				
170	Screen Saver-Picture shift amount 0:1pixel 1:2pixel 2:3pixel		2	0				
171	Thermo sensor function available or not 0:None,1:Yes		1	0				
172	Video Input function available or not at RGB1 & RGB2 mode	0:Not available, 1:Available	1	1				
173	Screen Saver-Picture shift direction 0:dia 1:cross 2:up/down 3:left/right		3	0				
174	AUDIO Function available 0:NO,1:YES		1	1				
175	Remote Function available 0:NO,1:YES		1	1				
176	Power Save On/Off Setting at Initialize,Reset and Shipping	0:Change 1: Don't Change	2	0				
177	DVI-STB/RGB-COMPONENT Function available 0:NO,1:YES		1	0				
178	Dynamic Backlight function 0:No, 1:Yes	For LCD model	1	1				
179	ISM Control for WVGA		1	1				
180	Terminal Mode Function available 0:Not Available, 1:Available	RS232C	1	0				
181	Black insert function 0:Not available, 1:Available	For Dynamic mode or Day mode (For LCD model only)	1	0				
182	AGC_LEVEL AGCL	ALL Mode	3	0				
183	TEXT H sync delay	—	127	0				
184	TEXT V sync delay	—	127	50				
185	TEXT_H_POSITION	—	254	42				
186	TEXT_V_POSITION	—	254	38				
187	Lower Limits value for Sync Detect of 2ms interval	For AFC at TV mode	254	25				
188	Upper Limits Value for Sync Detect of 2ms interval	For AFC at TV mode	254	40				
189	Lower Limits value for Sync Detect of 2ms interval	For Free Running at TV mode	254	30				
190	Upper Limits Value for Sync Detect of 2ms interval	For Free Running at TV mode	254	45				
191	Lower Limits value for Sync Detect of 2ms interval	For AUTO OFF at TV mode	254	25				
192	Upper Limits Value for Sync Detect of 2ms interval	For AUTO OFF at TV mode	254	35				
193	Lower Limits value for Sync Detect of 2ms interval	For Free Running at AV mode	254	30				
194	Upper Limits Value for Sync Detect of 2ms interval	For Free Running at AV mode	254	45				
195	Counting time for discrimination of fV	—	31	2				
196	Dispersion Time of Sustain current 0: 2 Times, 1: 4 times	For PC mode	1	1				
197	Counting time for discrimination of SYNC	—	31	2				
198	Input Source of fV/fH judghment(0:M30625/TA1370)	Component Mode	1	0				
199	Counting time for discrimination of fV(M30625/TA1370)	—	31	2				
200	Y_DL (6.5MHz PAL/NTSC4.43) For Asia	Main	10	7				
201	Y_DL (6.5MHz SECAM) For Asia	Main	10	10				
202	Y_DL (6.5MHz PAL/NTSC4.43) For Asia	Sub	10	4				
203	Y_DL (6.5MHz SECAM) For Asia	Sub	10	10				

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Adj. No.	Function		Maximum Value	Default	Changed Component			
	Adjust Items	Mode			Formatter PWB	VIDEO PWB	TUNER PWB	PDP PANEL
204	PDP-BLK ON/OFF	1:ON, 0:OFF	1	0				
205	Counting time for discrimination of fH(M30625/TA1370)	–	31	2				
206	Sharpness f0(L)	Sub	3	2				
207	NJW1320_OUT1_GAIN	VIDEO PWB	1	0				
208	NJW1320_OUT2_GAIN	VIDEO PWB	1	0				
209	Sharpness f0(L')	Sub	3	2				
210	AFC_GAIN (Except AV00 mode)	Except AV00 mode	3	0				
211	Recovery to an error of OSC frequency of Ceramic resonator for timer		62	34				
212	Brightness Center (CM)	NT2,3,4/HD2,3/PAL2,3,4/HD9,10	254	128				
213	Brightness Center (CM)	HD1/HD4/HD5/HD6/HD7/HD8	254	128				
214	Brightness Center (CM)	MULTI PICTURE/NT1/PAL1	254	128				
215	Reset function of accumulation time for WVGA/LCD Panel	0:Normal 1:Reset	1	0				
216	Contrast Center (CM) Except WVGA & LCD	TV/VIDEO(AV3/AV4 mode)	254	137				
217	Power key function available or not (At Force AVC mode)	0:Available 1:Cannot	1	0				
218	Color Center (CM)	NT1/NT2/NT4/HD3/HD4/HD6/PAL4	127	80				
219	Color Center (CM)	PAL1/PAL2/HD8/HD9	127	80				
220	Color Center (CM)	NT3/HD1/HD2/HD5/PAL3/HD7/HD10	127	80				
221	Tint Center (CM)	PAL1	254	120				
222	Tint Center (CM)	NT1/NT2/NT4/HD3/HD4/HD6	254	113				
223	Tint Center (CM)	PAL2/HD8/HD10/PAL4	254	108				
224	Tint Center (CM)	NT3/HD1/HD2/HD5/PAL3/HD7/HD9	254	124				
225	Center of Sharpness(HV Enhancer Gain for Y)For Europe	TV	31	19				
226	Center of Sharpness(HV Enhancer Gain for Y)For Europe	VIDEO	31	18				
227	Center of Sharpness(HV Enhancer Gain for Y)For Europe	HD5/HD6	31	11				
228	Center of Sharpness(HV Enhancer Gain for Y)For Europe	HD1/HD4/HD7/HD8	31	7				
229	Center of Sharpness(HV Enhancer Gain for Y)For Europe	HD2/HD3/HD9/HD10	31	15				
230	Center of Sharpness(HV Enhancer Gain for Y)For Europe	NT2/NT3/PAL2/PAL3/NT4/PAL4	31	15				
231	Center of Sharpness(HV Enhancer Gain for Y)For Europe	TEXT(for split)	31	7				
232	Maximum Value of Contrast at REAL/NORMAL mode		254	188				
233	Offset Value of Contrast data at SPLIT mode		120	83				
234	Offset value of gain for Black Stretch function	Except OFF/LOW/HIGH mode	63	33				
235	Demonstration [White] 0-3:None,4:0,5:+10W,6:+20W,7:+30W	Mode(common)	7	5				
236	Demonstration 0:Normal, 1:Peak	Mode	1	1				
237	Demonstration [Middle] 0:+0W,1:+10W,2:+20W,3:+30W	Mode(common)	3	3				
238	Demonstration 0:Normal, 1:Peak	Mode	1	0				
239	Horizontal Enhance	TEXT	3	3				
240	YNR Input Level at Low level for DVI-STV Mode	1080i-60/1080i-50/720p-60	7	2				
241	YNR Input Level at Low level for DVI-STV Mode	480i/480p/576i/576p/VGA	7	2				
242	CNR Input Level at Low level for DVI-STV Mode	1080i-60/1080i-50/720p-60	7	2				
243	CNR Input Level at Low level for DVI-STV Mode	480i/480p/576i/576p/VGA	7	2				
244	Vertical Enhance	TEXT	3	3				
245	Demonstration Mode 0:(Off), 1:(On)		1	0				
246	WVGA sys_state	For WVGA	1	0				
247	WVGA BRIGHTNESS	For WVGA	1	0				
248	Enhancer gain of VH for C	TEXT	31	0				
249	YNR(NR) Input Level	RF Mode	7	3				
250	YNR Input Level at Low level for AV1-4 Mode	VIDEO	7	3				
251	YNR Input Level at Low level for AV1-4 Mode	NT2/NT3/PAL2/PAL3/NT4/PAL4	7	3				
252	YNR Input Level at Low level for AV1-4 Mode	HD1/HD4/HD5/HD6/HD7/HD8	7	3				
253	YNR Input Level at Low level for AV1-4 Mode	HD2/HD3/HD9/HD10	7	3				
254	CNR Input Level at Low level for AV1-4 Mode	VIDEO	7	3				
255	CNR Input Level at Low level for AV1-4 Mode	NT2/NT3/PAL2/PAL3/NT4/PAL4	7	3				
256	CNR Input Level at Low level for AV1-4 Mode	HD1/HD4/HD5/HD6/HD7/HD8	7	3				
257	CNR Input Level at Low level for AV1-4 Mode	HD2/HD3/HD9/HD10	7	3				
258	Heat APC function (HAPC) available		1	1				
259	yselect(0:1.0 1:2.2 2:2.8)	TV/VIDEO	2	1				
260	yselect(0:1.0 1:2.2 2:2.8)	DVI-PC/DVI-STB/DSUB-RGB	2	1				
261	Select for APC function		1	0				
262	"CCFMD" function	TV/VIDEO	1	0				
263	"CCFMD" function	DVI-PC/DVI-STB/DSUB-RGB	1	0				
264	NTSC/EBU(CCFORM)	NT1,2/HD3,4,6,8,10/PAL1,2	1	0				
265	NTSC/EBU(CCFORM)	TV/VIDEO/NT3,4/PAL3,4/HD1,2,5,7,9	1	0				
266	NTSC/EBU(CCFORM)	DVI-PC/DVI-STB/DSUB-RGB	1	0				
267	Correction for Tracking (DCBON)	TV/VIDEO-Color Temp. : COOL	1	0				
268	Correction for Tracking (DCBON)	TV/AV-Col. Temp. : Nor/War	1	1				
269	Correction for Tracking (DCBON)	DVI-PC/DVI-STB/DSUB-RGB	1	1				
270	Color Temp. Correction		3	2				
271	Typical Value of Contrast OSD	DYNAMIC	31	31				

O : Should be adjusted
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Adj. No.	Function: Adjust Items	Function: Mode	Maximum Value	Default	Changed Component: Formatter PWB	Changed Component: VIDEO PWB	Changed Component: TUNER PWB	Changed Component: PDP PANEL
272	PC Power Save function (0:Impossible 1:Possible)		1	1				
273	Waite Time for POWER SAVE function (s)	VIDEO/PC	254	15				
274	Lower Limits value for Sync Detect of 2ms interval	For Power Save at AV mode	254	5				
275	Upper Limits Value for Sync Detect of 2ms interval	For Power Save at AV mode	254	200				
276	Horizontal Position of OSD	60Hz	15	7				
277	Vertical Position of OSD	60Hz	15	7				
278	PinP Function 0:PinP, 1:Infomation1, 2:Infomaiton Split		2	0				
279	Select for WIDE Mode		1	1				
280	Temperature for Fun start (Temp_High)		254	58				
281	Temperature for Fun stop (Temp_Low)		254	55				
282	Display of internal temperature °C (Temperature)		125	-				
283	Display of Panel map version		255	-				
284	accumulation time for Panel (hours)		65535	-				
285	Initialize function 0:Keep data, 1:Initialize	No.0-No.23,30-33,42-45,289,293,294Adj No.741-743,	1	-				
286	L standard PLL gating HIGH [Europe model]		1	0				
287	Select for APC output [Except Europe model]	Main FE	2	1				
288	Q mode 0:Freeze, 1:Move 1, 2:Move 2	50Hz	2	1				
289	AGC adjustment (MFE) [Except Europe model]	MAIN	63	50	Δ		O	
290	AGC adjustment (MFE) [Europe model]	MAIN	63	20				
291	AGC INPUT(MFE)	MAIN	-	-				
292	Q mode 0:Freeze, 1:Move 1, 2:Move 2	70Hz(PC)	2	0				
293	SUB CONTRAST AV2	MAIN/SUB COMPOSITE mode	15	8				
294	SUB CONTRAST AV3	MAIN/SUB COMPOSITE mode	15	8				
295	Contrast Center (CM) Except WVGA & LCD	AV2	254	137				
296	Contrast Center (CM) Except WVGA & LCD	AV1	254	137				
297	Brightness center (CM) offset	AV2	254	127				
298	Brightness center (CM) offset	AV1	254	127				
299	Q mode 0:Freeze, 1:Move 1, 2:Move 2	60Hz	2	1				
300	3D ON/OFF 0:ON,1:OFF(Through)		1	0				
301	Input Select of TA1370 0:HD1/VD1,1:HD3/VD3	Main/Sub	1	0				
302	Sharpness Gain(RF/NR)	Main/Sub	15	3				
303	3Line Y/C Main- Sub SW	0:Main, 1: Sub	1	0				
304	Offset Value(+/-) of Upper Limit (for TB1274:SUB-CONT)	Single Picture mode	18	2				
305	Offset Value(+/-) of Upper Limit (for FC :RGB-AMP)	Multi Picture mode	18	2				
306	Reference Amplitude(RGB_AMP)	Multi Picture mode	254	90				
307	Component Frq.(fH) Setup (0:28/31/33/45KHz,1:28/31/45KHz)		1	0				
308	Terget value of White peak Adj.	Single Picture mode	237	235				
309	Sharpness Gain(S VIDEO)	Main	15	7				
310	Sharpness Gain(S VIDEO)	Sub	15	7				
311	Select color control (0: Asia, 1: South America)	Main/Sub	1	0				
312	Sharpness Gain Main(N-PAL)		15	8				
313	Sharpness f0 Main(N-PAL)		3	2				
314	Sharpness Gain Sub (N-PAL)		15	9				
315	Sharpness f0 Sub (N-PAL)		3	2				
316	Delay Time ON/OFF for Lipsync circuit 0:Off, 1:On		1	1				
317	Sync Mode SW		7	0				
318	Set Sound System at Auto mode of Sound Sys. (0:auto,1:4.5MHz)	Main	1	0				
319	Power condition at power save mode of PC mode after done RESET function	0:Keep last condition, 1:Return to normal condition	1	0				
320	Switch to North USA model from Europe software. OSD change (Wide Mode,…)	0:For Europe, 1:Foe USA (DAY/NIGHT,...)	1	0				
321	Count Souce for ON/OFF Timer	0:MCU-250ms, 1:AC-50/60Hz	1	0				
322	Select Wide mode for Europe model (Normal= 5mode/ For Service= 10 mode)	0:Normal, 1:For service	1	0				
323	Forced AVC type available	0:Normal type , 1: Forced AVC type	1	0				
324	Sharpness Gain Main(M-PAL)		15	8				
325	Sharpness f0 Main(M-PAL)		3	2				
326	Sharpness Gain Sub (M-PAL)		15	9				
327	Sharpness f0 Sub (M-PAL)		3	2				
328	CNR Input Level at Low level for Dsub Comp. Mode	NT2/NT3/PAL2/PAL3/NT4/PAL4	7	2				
329	CNR Input Level at Low level for Dsub Comp. Mode	HD1/HD4/HD5/HD6/HD7/HD8	7	2				
330	CNR Input Level at Low level for Dsub Comp. Mode	HD2/HD3/HD9/HD10	7	2				
331	Sharpness Gain(VIDEO) NTSC3.58	MAIN	15	12				
332	Sharpness f0(VIDEO) NTSC3.58	MAIN	3	2				
333	Sharpness Gain(VIDEO) NTSC3.58	SUB	15	10				
334	Sharpness f0(VIDEO) NTSC3.58	SUB	3	2				
335	Sharpness Gain(VIDEO) SECAM,B/W	MAIN	15	10				
336	Sharpness f0(VIDEO) SECAM,B/W	MAIN	3	2				
337	Sharpness Gain(VIDEO) SECAM,B/W	SUB	15	8				
338	Sharpness f0(VIDEO) SECAM,B/W	SUB	3	2				
339	Sharpness Gain(VIDEO) NTSC4.43	MAIN	15	9				

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Adj. No.	Function		Maximum Value	Default	Changed Component			
	Adjust Items	Mode			Formatter PWB	VIDEO PWB	TUNER PWB	PDP PANEL
340	Sharpness f0(VIDEO) NTSC4.43	MAIN	3	2				
341	Sharpness Gain(VIDEO) NTSC4.43	SUB	15	8				
342	Sharpness f0(VIDEO) NTSC4.43	SUB	3	2				
343	Brightness Limitted Function of PANEL [APSON]		1	1				
344	VsVa WAIT TIMER [RISTIM]		15	5				
345	Initial value of Contrast	Panel life -Extend1	127	93				
346	Interval time of correction time	Panel life -Extend1	127	10				
347	Additional value of Contrast	Panel life -Extend1	127	1				
348	Initial value of Contrast	Panel life -Extend2	127	63				
349	Interval time of correction time	Panel life -Extend2	127	6				
350	Additional value of Contrast	Panel life -Extend2	127	1				
351	L_PLL.GAIN		1	0				
352	AS[YHECLPL0_P0]	RF/Multi	15	2				
353	AS[YHECLPL1_P0]	NT1-except RF/PAL1-except RF	15	2				
354	[YHECLPL2_P0]	HD	15	1				
355	AS[YHECLPL3_P0]	NT2^4/PAL2^4	15	10				
356	SEPA_LEVEL_DSUB	480i/576i	3	2				
357	SEPA_LEVEL_DSUB	480p/576p	3	2				
358	SEPA_LEVEL_DSUB	1080i_50	3	2				
359	SEPA_LEVEL_DSUB	1080i_60/720p	3	2				
360	HD-PHASE_DSUB	480i/576i	63	20				
361	HD-PHASE_DSUB	480p/576p	63	20				
362	HD-PHASE_DSUB	1080i_50	63	20				
363	HD-PHASE_DSUB	1080i_60/720p	63	20				
364	Y_DL (L)	MAIN	10	4				
365	Y_DL (L')	MAIN	10	4				
366	Y_DL (L)	Sub	10	1				
367	Y_DL (L')	Sub	10	1				
368	Sharpness Gain(L)	MAIN	15	10				
369	Sharpness Gain(L')	MAIN	15	10				
370	Sharpness Gain(L)	SUB	15	8				
371	Sharpness Gain(L')	SUB	15	8				
372	Sharpness f0(L)	MAIN	3	2				
373	Sharpness f0(L')	MAIN	3	2				
374	BURN-IN enable/ disenable	0:Disenable, 1:Enable	1	1				
375	BURN-IN mode		2	2				
376	CM_THRESHOLD (D15-D8)	–	254	0				
377	CM_THRESHOLD (D7 -D0)	–	254	36				
378	Sharpness Gain(RF M)	MAIN	15	11				
379	Sharpness Gain(RF M)	Sub	15	11				
380	Sharpness f0 (RF M)	Main	3	2				
381	Sharpness f0 (RF M)	SUB	3	2				
382	Counting value of 2ms Sync.Detect	MAIN	-	-				
383	Counting value of 2ms Sync.Detect	SUB	-	-				
384	TB1274 Read Data(00h)	Main	-	-				
385	TB1274 Read Data(01h)	Main	-	-				
386	TB1274 Read Data(00h)	Sub	-	-				
387	TB1274 Read Data(01h)	Sub	-	-				
388	MSP Read Data (CNTROL) (D15-D8)		-	-				
389	MSP Read Data (CNTROL) (D7 -D0)		-	-				
390	MSP Read Data (STANDARD_RES) (D15-D8)		-	-				
391	MSP Read Data (STANDARD_RES) (D7 -D0)		-	-				
392	MSP Read Data (STATUS) (D15-D8)		-	-				
393	MSP Read Data (STATUS) (D7 -D0)		-	-				
394	TA1370G Read Data(00h)	Video board side	-	-				
395	TA1370G Read Data(01h)	Video board side	-	-				
396	TA1370G Read Data(00h)	Formater side	-	-				
397	TA1370G Read Data(01h)	Formater side	-	-				
398	uPD64084 Read Data(00H)		-	-				
399	uPD64084 Read Data(01h)		-	-				
400	Language (Refer to below)		6	0				
401	Hotel Mode(0:No,1:Yes)		1	0				
402	Analog Data (0:Keep EEPROM,1:Not Keep to EEPROM)		1	0				
403	Maximum Volume Limit		63	63				
404	Power Mode(0:Last mode, 1:Pos1, 2:V1, 3:V2, 4:V3, 5:V4)		5	0				
405	Channel Select(0:CCIR, 1:CHINA)		1	0				
406	Auto_sound 4.5 (0:Korea, 1:BTSC, 2:Japan)		2	0				
407	T/TEXT(0: None, 1:Yes)		1	1				

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Adj. No.	Function		Maximum Value	Default	Changed Component			
	Adjust Items	Mode			Formatter PWB	VIDEO PWB	TUNER PWB	PDP PANEL
408	TEXT Language		7	0				
409	IIC BUS Data/Clock Open(0:Close, 1:Open)		1	0				
410	Channel Preset(0:VESTEL, 1:GIFU, 2:HAMA, 3:HFDM,4:AUSTRALIA)		4	1				
411	Detect and Displsy Tele-Cinema (0:normal 1:Tele Cinema)		-	-				
412	V FREQ 60Hz Force (0:None, 1:Yes)	Main/Sub	1	0				
413	COLOR SYSTEM CONTROL-MODE(0:BW, 2:3.58NTSC, 3:4.43NTSC,...)	Main	-	-				
414	COLOR SYSTEM CONTROL-MODE(0:BW, 2:3.58NTSC, 3:4.43NTSC,...)	Sub	-	-				
415	Horizontal Filter SW [HHPF0]	NTSC	1	0				
416	Enhancer Gain [HHPF1]	PAL	1	0				
417	Enhancer Gain [HHPF2]	HD	1	0				
418	Horizontal Coring Level(Enhancer Gain) AS[HECOR0_PO]	NT1-RF	15	1				
419	Horizontal Coring Level(Enhancer Gain) AS[HECOR1_PO]	PAL1-RF/ﾏﾙﾁ	15	1				
420	Horizontal Coring Level(Enhancer Gain) [HECOR2_PO]	NT1-Video	15	1				
421	Horizontal Coring Level(Enhancer Gain) [HECOR3_PO]	PAL1-Video	15	1				
422	Horizontal Coring Level(Enhancer Gain) [HECOR4_PO]	NT2/NT3/NT4/PAL2/PAL3/PAL4	15	1				
423	Horizontal Coring Level(Enhancer Gain) [HECOR5_PO]	HD2/HD3/HD9/HD10	15	1				
424	Horizontal Coring Level(Enhancer Gain) [HECOR6_PO]	HD1/HD4/HD5/HD6/HD7/HD8	15	0				
425	Horizontal Coring Level(Enhancer Gain) [HECORPC_PO]	PC	15	1				
426	Horizontal Coring Level(Enhancer Gain) EU[HECORE_PO]	PAL1-RF/multi	15	1				
427	Vertical Coring Level(Enhancer Gain) AS[VECOR0_PO]	NT1-RF	15	1				
428	Vertical Coring Level(Enhancer Gain) AS[VECOR1_PO]	PAL1-RF/multi	15	1				
429	Vertical Coring Level(Enhancer Gain) [VECOR2_PO]	NT1-Video	15	1				
430	Vertical Coring Level(Enhancer Gain) [VECOR3_PO]	PAL1-Video	15	1				
431	Vertical Coring Level(Enhancer Gain) [VECOR4_PO]	NT2/NT3/NT4/PAL2/PAL3/PAL4	15	0				
432	Vertical Coring Level(Enhancer Gain) [VECOR5_PO]	HD2/HD3/HD9/HD10	15	0				
433	Vertical Coring Level(Enhancer Gain) [VECOR6_PO]	HD1/HD4/HD5/HD6/HD7/HD8	15	0				
434	Vertical Coring Level(Enhancer Gain) [VECORPC_PO]	PC	15	0				
435	Vertical Coring Level(Enhancer Gain) EU[VECORE_PO]	PAL1-RF/multi	15	0				
436	Horizontal Coring Level(Enhancer Gain) AS[HECOR0_P1]	NT1-RF	15	1				
437	Horizontal Coring Level(Enhancer Gain) AS[HECOR0_P2]	PAL1-RF/multi	15	1				
438	Horizontal Coring Level(Enhancer Gain) [HECOR0_P3]	NT1-Video	15	1				
439	Horizontal Coring Level(Enhancer Gain) [HECOR0_P4]	PAL1-Video	15	1				
440	Horizontal Coring Level(Enhancer Gain) [HECOR0_P5]	NT2/NT3/NT4/PAL2/PAL3/PAL4	15	1				
441	Horizontal Coring Level(Enhancer Gain) [HECOR0_P6]	HD2/HD3/HD9/HD10	15	1				
442	Horizontal Coring Level(Enhancer Gain) [HECOR0_P7]	HD1/HD4/HD5/HD6/HD7/HD8	15	0				
443	Horizontal Coring Level(Enhancer Gain) [HECORPC_P1]	PC	15	1				
444	Horizontal Coring Level(Enhancer Gain) EU[HECORE_P1]	PAL1-RF/multi	15	1				
445	Vertical Coring Level(Enhancer Gain) AS[VECOR0_P1]	NT1-RF	15	1				
446	Vertical Coring Level(Enhancer Gain) AS[VECOR0_P2]	PAL1-RF/multi	15	1				
447	Vertical Coring Level(Enhancer Gain) [VECOR0_P3]	NT1-Video	15	1				
448	Vertical Coring Level(Enhancer Gain) [VECOR0_P4]	PAL1-Video	15	1				
449	Vertical Coring Level(Enhancer Gain) [VECOR0_P5]	NT2/NT3/NT4/PAL2/PAL3/PAL4	15	0				
450	Vertical Coring Level(Enhancer Gain) [VECOR0_P6]	HD2/HD3/HD9/HD10	15	0				
451	Vertical Coring Level(Enhancer Gain) [VECOR0_P7]	HD1/HD4/HD5/HD6/HD7/HD8	15	0				
452	Vertical Coring Level(Enhancer Gain) [VECORPC_P1]	PC	15	0				
453	Vertical Coring Level(Enhancer Gain) EU[VECORE_P1]	PAL1-RF/multi	15	0				
454	YFRNR Input Gain (Main) 2pictures [MYNRG0]	except HD-HD	7	1				
455	（HD-NTSC,HD-PAL(sub) [MYNRG1]	HD-HD	7	4				
456	4pictures [MYNRG2]	NT-*/PAL-*	7	1				
457	[MYNRG3]	HD-*	7	4				
458	YFRNR Input Gain(Sub) [YCNRG0]	2pictures	7	4				
459	[YCNRG1]	4pictures/12pictures	7	1				
460	CFRNR Input Gain 8Main) 2pictures [MCNRG0]	except HD-HD	7	3				
461	<HD-NTSC,HD-PAL(Sub) [MCNRG1]	HD-HD	7	4				
462	[MCNRG2]		7	4				
463	[MCNRG3]	HD-*	7	4				
464	CFRNR Input Gain [SCNRG0]	2pictures	7	3				
465	[SCNRG1]	4pictures/12pictures	7	4				
466	YFRNR Transition Level [MYNRP0]	NT1/PAL1/multi	7	1				
467	[MYNRP5]	NT1/PAL1-Video	7	0				
468	[MYNRP6]	NT2/NT3/NT4/PAL2/PAL3/PAL4	7	0				
469	[MYNRP7]	HD2/HD3/HD9/HD10	7	0				
470	[MYNRP8]	HD1/HD4/HD5/HD6/HD7/HD8	7	0				
471	YFRNR Transition Level (Main/Sub) [MCNRP0]	NT1/PAL1/multi	7	2				
472	[MCNRP5]	NT1/PAL1-video	7	2				
473	[MCNRP6]	NT2/NT3/NT4/PAL2/PAL3/PAL4	7	2				
474	[MCNRP7]	HD2/HD3/HD9/HD10	7	2				
475	[MCNRP8]	HD1/HD4/HD5/HD6/HD7/HD8	7	0				

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Adj. No.	Function		Maximum Value	Default	Changed Component			
	Adjust Items	Mode			Formatter PWB	VIDEO PWB	TUNER PWB	PDP PANEL
476	Vertical Enhancer [YVEG0_P0]	NTSC/PAL(-except RF)	15	8				
477	[YVEG1_P0]	HD2/HD3/HD9/HD10	15	12				
478	[YVEG2_P0]	HD1/HD4/HD5/HD6/HD7/HD8	15	8				
479	AS[YVEG3_P0]	PAL1-RF/multi	15	8				
480	EU[YVEG0_E_P0]	PAL1-RF/multi	15	8				
481	Vertical RGB Gain For Y/G [YVDSBG0_P0]	NTSC/PAL/multi	3	0				
482	[YVDSBG1_P0]	HD2/HD3/HD9/HD10	3	0				
483	[YVDSBG2_P0]	HD1/HD4/HD5/HD6/HD7/HD8	3	0				
484	Vertical RGB Coring For Y/G [YVDSBG0_P0]	NTSC/PAL/multi	7	0				
485	[YVDSBG1_P0]	HD	7	3				
486	Vertical Enhancer Clip for Y/G [YVECLP0_P0]	NTSC/PAL/multi	1	1				
487	[YVECLP1_P0]	HD	1	1				
488	Vertical Clip Offset level [YVECLP0_P0]	NTSC/PAL/multi	15	7				
489	[YVECLP1_P0]	HD	15	1				
490	Vertical Non Linear Peaking for Y/G [YVNLP0_P0]	NTSC/PAL/multi	63	0				
491	[YVNLP1_P0]	HD	63	0				
492	Horizontal HPF Peak Freq SW for Y/G [YHHPF0_P0]	NTSC/PAL/multi	3	2				
493	[YHHPF1_P0]	HD2/HD3/HD9/HD10	3	1				
494	[YHHPF2_P0]	HD1/HD4/HD5/HD6/HD7/HD8	3	1				
495	Horizontal Enhancer Gain for Y/G [YHEG0_P0]	NTSC/PAL(except -RF)	15	15				
496	[YHEG1_P0]	HD2/HD3/HD9/HD10	15	15				
497	[YHEG2_P0]	HD1/HD4/HD5/HD6/HD7/HD8	15	0				
498	AS[YHEG3_P0]	PAL1-RF/multi	15	15				
499	EU[YHEG0_E_P0]	PAL1-RF/multi	15	15				
500	Hrozontal DSB Gain for Y/G [YHDSBG0_P0]	NTSC/PAL/multi	3	2				
501	[YHDSBG1_P0]	HD2/HD3/HD9/HD10	3	0				
502	[YHDSBG2_P0]	HD1/HD4/HD5/HD6/HD7/HD8	3	0				
503	Horizontal DSB Coring for Y/G [YHDSBC0_P0]	NTSC/PAL/multi	7	4				
504	[YHDSBC1_P0]	HD	7	0				
505	Horizontal Enhancer Clip for Y/G [YHECLP0_P0]	NTSC/PAL/multi	1	0				
506	[YHECLP1_P0]	HD	1	0				
507	Horizontal Clip Offset Level for Y/G AS[YHECLPL0_P0]	RF/multi	15	2				
508	AS[YHECLPL1_P0]	NT1-except RF/PAL1-except RF	15	2				
509	[YHECLPL2_P0]	HD	15	1				
510	EU[YHECLPL0_E_P0]	RF/multi	15	4				
511	EU[YHECLPL1_E_P0]	NT1-except RF/PAL1-except RF	15	4				
512	Horizontal Non Linear Peaking for Y/G [YHNLP0_P0]	NTSC/PAL/multi	63	0				
513	[YHNLP1_P0]	HD	63	0				
514	Coring Amplitude for Y/G [YCOR0_PO]	NT1-RF/PAL1-RF/multi	7	7				
515	[YCOR1_PO]	NT1-Video/PAL1-Video	7	3				
516	[YCOR2_PO]	NT2/NT3/NT4/PAL2/PAL3/PAL4	7	2				
517	[YCOR3_PO]	HD2/HD3/HD9/HD10	7	1				
518	[YCOR4_PO]	HD1/HD4/HD5/HD6/HD7/HD8	7	1				
519	Vertical Enhancer Gain for Y/G [YVEG0_P1]	NTSC/PAL(-RF以外)	15	8				
520	[YVEG1_P1]	HD2/HD3/HD9/HD10	15	12				
521	[YVEG2_P1]	HD1/HD4/HD5/HD6/HD7/HD8	15	8				
522	AS[YVEG3_P1]	PAL1-RF/multi	15	8				
523	EU[YVEG0_E_P1]	PAL1-RF/multi	15	8				
524	Vertical DSB Gain for Y/G [YVDSBG0_P1]	NTSC/PAL/multi	3	0				
525	[YVDSBG1_P1]	HD2/HD3/HD9/HD10	3	0				
526	[YVDSBG2_P1]	HD1/HD4/HD5/HD6/HD7/HD8	3	0				
527	Vertical DSB Coring for Y/G [YVDSBC0_P1]	NTSC/PAL/multi	7	0				
528	[YVDSBC1_P1]	HD	7	3				
529	Vertical Enhancer Clip for Y/G [YVECLP0_P1]	NTSC/PAL/multi	1	1				
530	[YVECLP1_P1]	HD	1	1				
531	Vertical Clip Offset Level for Y/G [YVECLP0_P1]	NTSC/PAL/multi	15	7				
532	[YVECLP1_P1]	HD	15	1				
533	Vertical Non Linear Peaking for Y/G [YVNLP0_P1]	NTSC/PAL/multi	63	0				
534	[YVNLP1_P1]	HD	63	0				
535	Horizontal HPF Pead Freq SW for Y/G [YHHPF0_P1]	NTSC/PAL/multi	3	2				
536	[YHHPF1_P1]	HD2/HD3/HD9/HD10	3	1				
537	[YHHPF2_P1]	HD1/HD4/HD5/HD6/HD7/HD8	3	1				
538	Horizontal Enhancer Gain for Y/G [YHEG0_P1]	NTSC/PAL(except-RF)	15	10				
539	[YHEG1_P1]	HD2/HD3/HD9/HD10	15	10				
540	[YHEG2_P1]	HD1/HD4/HD5/HD6/HD7/HD8	15	0				
541	AS[YHEG3_P1]	PAL1-RF/multi	15	10				
542	EU[YHEG0_E_P1]	PAL1-RF/multi	15	10				
543	Horizontal DSB Gain for Y/G [YHDSBG0_P1]	NTSC/PAL/multi	3	3				

O : Should be adjusted
Δ : Should be followed previous data

Adj. No.	Function		Maximum Value	Default	Changed Component			
	Adjust Items	Mode			Formatter PWB	VIDEO PWB	TUNER PWB	PDP PANEL
544	[YHDSBG1_P1]	HD2/HD3/HD9/HD10	3	0				
545	[YHDSBG2_P1]	HD1/HD4/HD5/HD6/HD7/HD8	3	0				
546	Horizontal DSB Coaring for Y/G [YHDSBC0_P1]	NTSC/PAL/multi	7	1				
547	[YHDSBC1_P1]	HD	7	0				
548	Horizontal Enhancer Clip for Y/G [YHDSBC0_P1]	NTSC/PAL/multi	1	0				
549	[YHDSBC1_P1]	HD	1	0				
550	Horizontal Clip Offset Level for Y/G AS[YHCLPL0_P1]	RF/multi	15	1				
551	AS[YHCLPL1_P1]	except NT1-RF/PAL1-except RF	15	1				
552	[YHECLPL2_P1]	HD	15	0				
553	EU[YHECLPL0_E_P1]	RF/multi	15	4				
554	EU[YHECLPL1_E_P1]	NT1-RF以外/PAL1-except RF	15	4				
555	Horizontal Non Linear Peaking for Y/G [YHNLP0_P1]	NTSC/PAL/multi	63	0				
556	[YHNLP1_P1]	HD	63	0				
557	Coring Amplitude for Y/G [YC0R0_P1]	NT1-RF/PAL1-RF/multi	7	7				
558	[YC0R1_P1]	NT1-video/PAL1-video	7	5				
559	[YC0R2_P1]	NT2/NT3/NT4/PAL2/PAL3/PAL4	7	3				
560	[YC0R3_P1]	HD2/HD3/HD9/HD10	7	1				
561	[YC0R4_P1]	HD1/HD4/HD5/HD6/HD7/HD8	7	1				
562	Vertical enhancer Gain for B-Y/B, R-Y/R [CVEG0]	NTSC/PAL/multi	15	15				
563	[CVEG1]	HD	15	9				
564	DSB Gain of Vertical for B-Y/B、R-Y/R [CVDSBG0]	NTSC/PAL/multi	3	0				
565	[CVDSBG1]	HD	3	0				
566	DSB coring of Vertical for B-Y/B、R-Y/R [CVDSBC0]	NTSC/PAL/multi	7	0				
567	[CVDSBC1]	HD	7	0				
568	Vertical enhancer Clip for B-Y/B, R-Y/R [CVECLP0]	NTSC/PAL/multi	1	0				
569	[CVECLP1]	HD	1	0				
570	Horizontal HPF Peak Freq. SW for B-Y/B, R-Y/R [CHHPF0]	NTSC/PAL/multi	3	2				
571	[CHHPF1]	HD	3	2				
572	Horizontal Enhancer Gain for B-Y/B, R-Y/R [CHEG0]	NTSC/PAL/multi	15	15				
573	[CHEG1]	HD	15	9				
574	Horizontal DSB Gain for B-Y/B, R-Y/R [CHDSBG0]	NTSC/PAL/Multi Picture	3	0				
575	[CHDSBG1]	HD	3	0				
576	Horizontal DSB Coring for B-Y/B, R-Y/R [CHDSBC0]	NTSC/PAL/Multi Picture	7	0				
577	[CHDSBC1]	HD	7	0				
578	Horizontal Enhancer Clip fo B-Y/B, R-Y/R [CHECLP0]	NTSC/PAL/Multi Picture	1	0				
579	[CHECLP1]	HD	1	0				
580	Coring Amplitude for B-Y/B, R-Y/R [CC0R0]	NTSC/PAL/Multi Picture	7	1				
581	[CC0R1]	HD	7	1				
582	B-Y Clamp offset [Except D Sub Component]	NT1/2/3,HD2/3,PAL1/2/3,HD9/10	255	128				
583	R-Y Clamp offset [Except D Sub Component]	NT1/2/3,HD2/3,PAL1/2/3,HD9/10	255	128				
584	B-Y Clamp offset [Except D Sub Component]	HD1/4,HD7/8	255	128				
585	R-Y Clamp offset [Except D Sub Component]	HD1/4,HD7/8	255	128				
586	B-Y Clamp offset [Except D Sub Component]	HD5/6	255	128				
587	R-Y Clamp offset [Except D Sub Component]	HD5/6	255	128				
588	B-Y Clamp offset [D Sub Component]	NT1/2/3,HD2/3,PAL1/2/3,HD9/10	255	128				
589	R-Y Clamp offset [D Sub Component]	NT1/2/3,HD2/3,PAL1/2/3,HD9/10	255	128				
590	B-Y Clamp offset [D Sub Component]	HD1/4,HD7/8	255	128				
591	R-Y Clamp offset [D Sub Component]	HD1/4,HD7/8	255	128				
592	B-Y Clamp offset [D Sub Component]	HD5/6	255	128				
593	R-Y Clamp offset [D Sub Component]	HD5/6	255	128				
594	B-Y Clamp offset [DVI-STB]	480i/576i/480p/576p/VGA	255	128				
595	R-Y Clamp offset [DVI-STB]	480i/576i/480p/576p/VGA	255	128				
596	B-Y Clamp offset [DVI-STB]	1080i-50/1080i-60	255	128				
597	R-Y Clamp offset [DVI-STB]	1080i-50/1080i-60	255	128				
598	B-Y Clamp offset [DVI-STB]	720p-60	255	128				
599	R-Y Clamp offset [DVI-STB]	720p-60	255	128				
600	Y OUT LEVEL M (4.5) For Asia	Main	63	15				
601	Y OUT LEVEL B/G (5.5) For Asia	Main	63	13				
602	Y OUT LEVEL D/K (6.5) For Asia	Main	63	16				
603	Y OUT LEVEL I (6.0) For Asia	Main	63	14				
604	Y OUT LEVEL B/G (5.5) For Europe	Main	63	13				
605	Y OUT LEVEL D/K (6.5) For Europe	Main	63	16				
606	Y OUT LEVEL I (6.0) For Europe	Main	63	19				
607	Y OUT LEVEL L (6.5) For Europe	Main	63	13				
608	Y OUT LEVEL L' (6.1) For Europe	Main	63	12				
609	Y OUT LEVEL M (4.5) For US	Main	63	13				
610	C OUT LEVEL M (4.5) For Asia	Main	63	7				
611	C OUT LEVEL B/G (5.5) For Asia	Main	63	13				

O : Should be adjusted
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Adj. No.	Function		Maximum Value	Default	Changed Component			
	Adjust Items	Mode			Formatter PWB	VIDEO PWB	TUNER PWB	PDP PANEL
612	C OUT LEVEL D/K (6.5) For Asia	Main	63	13				
613	C OUT LEVEL I (6.0) For Asia	Main	63	13				
614	C OUT LEVEL B/G (5.5) For Europe	Main	63	8				
615	C OUT LEVEL D/K (6.5) For Europe	Main	63	8				
616	C OUT LEVEL I (6.0) For Europe	Main	63	3				
617	C OUT LEVEL L (6.5) For Europe	Main	63	8				
618	C OUT LEVEL L' (6.1) For Europe	Main	63	8				
619	C OUT LEVEL M (4.5) For US	Main	63	13				
620	Y OUT LEVEL M (4.5) For Asia	Sub	63	14				
621	Y OUT LEVEL B/G (5.5) For Asia	Sub	63	13				
622	Y OUT LEVEL D/K (6.5) For Asia	Sub	63	15				
623	Y OUT LEVEL I (6.0) For Asia	Sub	63	13				
624	Y OUT LEVEL B/G (5.5) For Europe	Sub	63	13				
625	Y OUT LEVEL D/K (6.5) For Europe	Sub	63	16				
626	Y OUT LEVEL I (6.0) For Europe	Sub	63	20				
627	Y OUT LEVEL L (6.5) For Europe	Sub	63	13				
628	Y OUT LEVEL L' (6.1) For Europe	Sub	63	13				
629	Y OUT LEVEL M (4.5) For US	Sub	63	13				
630	C OUT LEVEL M (4.5) For Asia	Sub	63	7				
631	C OUT LEVEL B/G (5.5) For Asia	Sub	63	13				
632	C OUT LEVEL D/K (6.5) For Asia	Sub	63	13				
633	C OUT LEVEL I (6.0) For Asia	Sub	63	13				
634	C OUT LEVEL B/G (5.5) For Europe	Sub	63	13				
635	C OUT LEVEL D/K (6.5) For Europe	Sub	63	13				
636	C OUT LEVEL I (6.0) For Europe	Sub	63	13				
637	C OUT LEVEL L (6.5) For Europe	Sub	63	13				
638	C OUT LEVEL L' (6.1) For Europe	Sub	63	13				
639	C OUT LEVEL M (4.5) For US	Sub	63	13				
640	Contrast Center (CM) ((Contrast Offset (CM) for only WVGA& LCD model))	DVI-PC	254	128				
641	Contrast Center (CM) ((Contrast Offset (CM) for only WVGA& LCD model))	DVI-STB (With Setup)	254	149				
642	Contrast Center (CM) ((Contrast Offset (CM) for only WVGA& LCD model))	DVI-STB (Without Setup)	254	128				
643	Contrast Center (CM) ((Contrast Offset (CM) for only WVGA& LCD model))	DSUB-RGB	254	128				
644	Contrast Center (CM) ((Contrast Offset (CM) for only WVGA& LCD model))	Expand DSUB-RGB (Reserved)	254	128				
645	Contrast Center (CM) ((Contrast Offset (CM) for only WVGA& LCD model))	DSUB-COMP	254	137				
646	Brightness Center (CM)	DVI-PC	254	128				
647	Brightness Center (CM)	DVI-STB	254	128				
648	Brightness Center (CM)	DSUB-RGB	254	128				
649	Brightness Center (CM)	Expand DSUB-RGB (Reserved)	254	128				
650	Brightness Center Offset	DSUB-COMP	254	127				
651	Color Center (CM)	DVI-PC	127	64				
652	Color Center (CM)	DVI-STB (480i/576i/480p/576p)	127	62				
653	Color Center (CM)	DVI-STB (720p-60/1080i-60/1080i-50	127	62				
654	Color Center (CM)	DVI-STB (VGA)	127	62				
655	Color Center (CM)	DSUB-RGB	127	64				
656	Tint Center (CM)	DVI-PC	254	128				
657	Tint Center (CM)	DVI-STB (480i/576i/480p/576p)	254	128				
658	Tint Center (CM)	DVI-STB (720p-60/1080i-60/1080i-50	254	128				
659	Tint Center (CM)	DVI-STB (VGA)	254	128				
660	Tint Center (CM)	DSUB-RGB	254	128				
661	Center of Sharpness (HV Enhance Gain for Y)	DVI-STB (480i/576i)	31	14				
662	Center of Sharpness (HV Enhance Gain for Y)	DVI-STB (480p/576p)	31	10				
663	Center of Sharpness (HV Enhance Gain for Y)	DVI-STB (720p-60)	31	6				
664	Center of Sharpness (HV Enhance Gain for Y)	DVI-STB (1080i-60/1080i-50)	31	10				
665	Center of Sharpness (HV Enhance Gain for Y)	DVI-STB (VGA)	31	10				
666	DVI-STB Setup 0:None VGA/Others Yes, 1:All none 2:All have	DVI-STB mode	2	0				
667	HSYNC De-Jitter 0:Low (Disabled), 1:(High (Enabled)	DVI-PC	1	0				
668	HSYNC De-Jitter 0:Low (Disabled), 1:(High (Enabled)	DVI-STB	1	0				
669	HSYNC De-Jitter 0:Low (Disabled), 1:(High (Enabled)	AVC	1	0				
670	Offset level of Horizontal CLIP for Y/G AS[YHECLPL3_P0]	NT2^4/PAL2^4	15	10				
671	EU[YHECLPL3_E_P0]	NT2^4/PAL2^4	15	10				
672	Offset level of Horizontal CLIP for Y/G AS[YHCLPL3_P1]	NT2^4/PAL2^4	15	10				
673	EU[YHECLPL3_E_P1]	NT2^4/PAL2^4	15	10				
674	Y_DL (4.5MHz) For US	Main	10	7				
675	Y_DL (4.6MHz) For US	Sub	10	7				
676	Y_DL (5.5MHz PAL/NTSC4.43) For Europe	Main	10	4				
677	Y_DL (5.5MHz SECAM) For Europe	Main	10	1				
678	Y_DL (6.0PAL/NTSC4.43) For Europe	Main	10	8				
679	Y_DL (6.0SECAM) For Europe	Main	10	5				

O : Should be adjusted
Δ : Should be followed previous data

Adj. No.	Function		Maximum Value	Default	Changed Component			
	Adjust Items	Mode			Formatter PWB	VIDEO PWB	TUNER PWB	PDP PANEL
680	Y_DL (5.5MHz PAL/NTSC4.43) For Europe	Sub	10	2				
681	Y_DL (5.5MHz SECAM) For Europe	Sub	10	0				
682	Y_DL (6.0PAL/NTSC4.43) For Europe	Sub	10	4				
683	Y_DL (6.0SECAM) For Europe	Sub	10	0				
684	Y_DL (6.5MHz PAL/NTSC4.43) For Europe	Main	10	5				
685	Y_DL (6.5MHz SECAM) For Europe	Main	10	5				
686	Y_DL (6.5MHz PAL/NTSC4.43) For Europe	Sub	10	2				
687	Y_DL (6.5MHz SECAM) For Europe	Sub	10	0				
688	Center of Sharpness (HV Enhancer Gain for Y) For Asia/US	TV	31	19				
689	Center of Sharpness (HV Enhancer Gain for Y) For Asia/US	VIDEO	31	24				
690	Center of Sharpness (HV Enhancer Gain for Y) For Asia/US	HD5/HD6	31	11				
691	Center of Sharpness (HV Enhancer Gain for Y) For Asia/US	HD1/HD4/HD7/HD8	31	7				
692	Center of Sharpness (HV Enhancer Gain for Y) For Asia/US	HD2/HD3/HD9/HD10	31	15				
693	Center of Sharpness (HV Enhancer Gain for Y) For Asia/US	NT2/NT3/PAL2/PAL3/NT4/PAL4	31	9				
694	Center of Sharpness (HV Enhancer Gain for Y) For Asia/US	TEXT(2pictures)	31	15				
695	Contrast mode<Dynamic> SW (TV) 0:Dynamic 1:Dynamic+Auto	TV	1	0				
696	V detection(FORMATTER PWB) 0:out of range 128: NO V (or out of spec) 255interrupt	50/60Hz	255	-				
697	H detection(FORMATTER PWB) 0:out of range 128: NO V (or out of spec) 255interrupt	15/28/31/33/45kHz	255	-				
698	V detection (VIDEO PWB) 0:out of range 128:NO V 255 interrupt	50/60Hz	255	-				
699	H detection (VIDEO PWB) 0:out of range 128:NO V 255 interrupt	15/28/31/33/45kHz	255	-				
700	Q mode 0:Freeze, 1:Move 1, 2:Move 2 For 55V	50Hz[Natural/Night] mode	2	1				
701	Q mode 0:Freeze, 1:Move 1, 2:Move 2 For 55V	60Hz[Natural/Night] mode	2	1				
702	Dispersion Time of Sustain current 0: 2 Times, 1: 4 times	For PC-Movie mode	1	1				
703	SMPLING	For CCD	255	0				
704	POLLING	For CCD	255	15				
705	START	For CCD	7	2				
706	TIMEOUT	For CCD	30	5				
707	STATUS	For CCD	7	2				
708	CCD-HP	For CCD	79	40				
709	CCD-CLK	For CCD	79	57				
710	Sharpness Gain	For Main 480i/576i	15	10				
711	Sharpness EQ	For Main 480i/576i	3	1				
712	Sharpness f0	For Main 480i/576i	3	1				
713	Cb Offset1	For Main 480i/576i	15	8				
714	Cr Offset1	For Main 480i/576i	15	8				
715	Y out level	For Main 480i/576i	63	15				
716	C out level	For Main 480i/576i	63	15				
717	Sharpness Gain	For Sub 480i/576i	15	10				
718	Sharpness EQ	For Sub 480i/576i	3	1				
719	Sharpness f0	For Sub 480i/576i	3	1				
720	Cb Offset1	For Sub 480i/576i	15	8				
721	Cr Offset1	For Sub 480i/576i	15	8				
722	Y out level	For Sub 480i/576i	63	15				
723	C out level	For Sub 480i/576i	63	15				
724	Offset value of adjusted TINT for impact to No.42-45	For COMPAL factory	20	11				
725	Use item No.724 O:No , 1:Yes	For COMPAL factory	1	0				
726	Free		31	17				
727	Free		31	20				
728	Free		31	1				
729	Free		31	1				
730	Free		53	12				
731	Free		31	1				
732	Free		-	-				
733	Free		-	-				
734	Free		-	-				
735	Free		-	-				
736	Free		-	-				
737	Free		-	-				
738	Free		-	-				
739	Free		-	-				
740	Gain adjustment of RGB amplifier (FLAON)	Main	-	-	O			O
741	Gain adjustment of RGB amplifier	Sub	-	-	O			O
742	Automatic White Peak Adj.	Single Picture mode	-	-	O			O
743	Automatic White Peak Adj.	Multi Picture mode	-	-	O			O
744	EEPROM Initialize(0:No, 1:Yes)		1	0				
745	Enter to service menu of sub mi-con		-	-				

● The Expression of input signal mode (format)

PAL1: S and Composite of PAL/SECAM
PAL2: Component of PAL (YCBCR)
PAL3: Component of PAL (YPBPR)
PAL4: Component of PAL (YCBCR-SCART)
PAL: PAL1-4
NT1: S and Composite of NTSC
NT2: Component of NTSC (YCBCR)
NT3: Component of NTSC (YPBPR)
NT4: Component of NTSC (YCBCR-SCART)
NTSC: NTSC1-4
HD1-6: Component (shown in the table→)
HD7: Component of 1080i/50 (YPBPR)
HD8: Component of 1080i/50 (YCBCR)
HD9: Component of 576p (YPBPR)
HD10: Component of 576p (YCBCR)
HD: HD1-10 of Component
TV: NTSC / HD
PC: PC signal

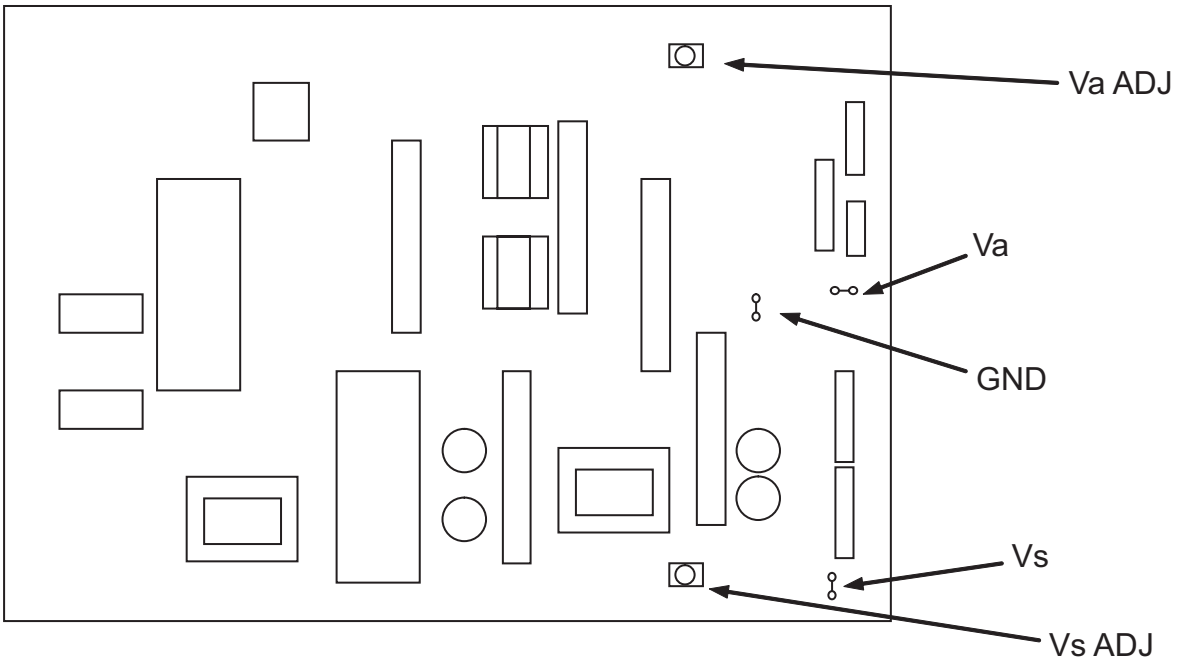
Video Input	System	Judgment of H.Frequency	Video Input Setup	Mode
AV1 AV2	PAL	15.75kHz (576i)	Auto	PAL2
			SDTV/DVD	PAL2
			HDTV	PAL3
	NTSC	15.75kHz (480i)	Auto	NT2
			SDTV/DVD	NT2
			HDTV	NT3
	PAL	31.25kHz (576p)	Auto	HD10
			SDTV/DVD	HD10
			HDTV	HD9
	NTSC	31.50kHz (480p)	Auto	HD3
			SDTV/DVD	HD3
			HDTV	HD2
	NTSC	45.00kHz (720p)	Auto	HD5
			SDTV/DVD	HD6
			HDTV	HD5
	PAL	28.125kHz (1080i)	Auto	HD7
			SDTV/DVD	HD8
			HDTV	HD7
	NTSC	33.75kHz (1080i)	Auto	HD1
			SDTV/DVD	HD4
			HDTV	HD1

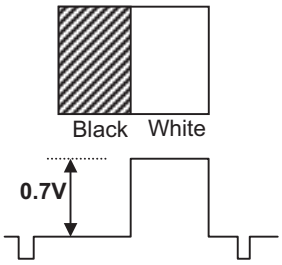
● Factory Reset

After all of the adjustments of main chassis are finished, perform FACTORY RESET.
Press the SUB-POWER(⏻) button, INPUT SELECT(⮌) button and ▲ button at the same time, and hold for more than 5 seconds.
The unit is set to factory settings.

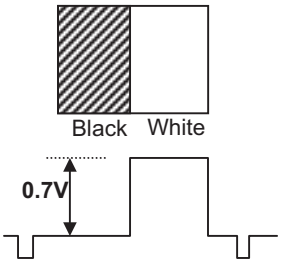
Item	Power Unit Vs, Va Adjustment			Adj. point	Refer the figure below
Adjustment Preparations		Adjustment Procedures		Remarks	
(1)	Turn on the set and perform pre-heat run more than 1 min with burn-in screen.	(1)	Turn Vs ADJ to adjust Vs voltage to be within ±0.1V of the value specified in the label on the panel.	Permissive level of voltage in sufficient time of heat-run performed is: Vs: within±0.45V Va: within±0.55V	
(2)	Receive full back pattern signal (or Video silence signal; it will be automatically turned off after a few seconds by power save function.)	(2)	Turn Va ADJ to adjust Va voltage to be within ±0.2V of the value specified in the label on the panel.		
(3)	Connect voltmeter leads to Vs (or Va) and GND test points of the power unit.	(3)	Reconfirm that Vs voltage remains within ±0.1V of the specified value. Readjust if it' s outside of the margin.		
			Label example <LOT>N6 Vs= 185.0V Va=65.0V	Label position (Reference) Upper right If it' s hard to read the voltage value because of the wiring, highlight it in advance to be visible.	

Power unit for WVGA

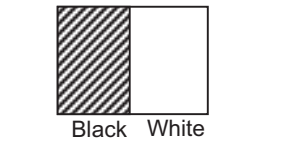
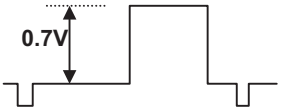


Item	AUTOMATIC SIGNAL LEVEL ADJUSTMENT –RGB (1)		
Preparation		Procedure	
(1)	Input the adjustment signal of VGA (60Hz) format into RGB2 [D-sub] input terminal. the adjustment signal The signal level of black area should be pedestal level. This signal must not be inserted characters etc.  	(1) (2)	Select RGB2 and enter the service adjustment mode. Select No.740 “RGB Amp. Gain ADJ.” and press OK button for more than 2 seconds to start the adjustment. It will complete the adjustment after the OSD of “AUTO MODE” disappeared.

[Note] Never adjust without use of the specified signal.
If that were done by mistake, the picture would become abnormal in black level, contrast and color.
In this case, it will be recovered by re-adjustment in the specified way.

Item	AUTOMATIC SIGNAL LEVEL ADJUSTMENT –RGB (2)		
Preparation		Procedure	
(1)	Input the adjustment signal of 576p or 480p format into AV1 input terminal. the adjustment signal The signal level of black area should be pedestal level. This signal must not be inserted characters etc.  	(1) (2) (3)	Select AV1 and enter the service adjustment mode. Select No.740 “RGB Amp. Gain ADJ.” and press OK button for more than 2 seconds to start the adjustment. It will complete the adjustment after the OSD of “AUTO MODE” disappeared. Select No.741 “RGB Amp. Gain ADJ.” and press OK button for more than 2 seconds to start the adjustment. It will complete the adjustment after the OSD of “AUTO MODE” disappeared.

[Note] Never adjust without use of the specified signal.
If that were done by mistake, the picture would become abnormal in black level, contrast and color.
In this case, it will be recovered by re-adjustment in the specified way.

Item	AUTOMATIC SIGNAL LEVEL ADJUSTMENT –VIDEO		
Preparation		Procedure	
(1)	Input the adjustment signal of 576p or 480p format into AV1 input terminal. the adjustment signal The signal level of black area should be pedestal level. This signal must not be inserted characters etc.   	(1)	Select AV1 and enter the service adjustment mode.
		(2)	Select No.743 “Automatic White peak Adj. (Multi)” and press OK button for more than 2 seconds to start the adjustment. It will complete the adjustment after the OSD of “AUTO MODE” disappeared.

[Note] Never adjust without use of the specified signal.
If that were done by mistake, the picture would become abnormal in black level, contrast and color.
In this case, it will be recovered by re-adjustment in the specified way.

Item	Video Color Temperature Adjustment (Cool)	Adj. point	I^2C

Adjustment Preparations		Adjustment Procedures		Remarks
(1)	Set the output of signal generator to white raster. (Ratio:100%)	(1)	Perform the following adjustment with the remote control.	Color temperature should be adjusted under the condition in which the screen is the brightest, thus the initial value of adjustment is it's maximum value.
(2)	Component signal (480i) Video level:0.714Vp-p SYNC:0.286Vp-p Set-up level:0V	(2)	Set the CRT color analyzer (CA100) at the center of the panel.	Only reducing the brightness controls the adjustment, thus weaken the brighter color to adjust.
(3)	Set Picture MENU to [RESET].	(3)	Ensure that adjustment No. 0, 1, 2 are all set as 224.	
(4)	Set into Factory adjustment mode.	(4)	After receiving Video signal, step down the two (or one) among adjustment No. 0, 1, 2 and adjust the value as shown below.	Color temperature is at Cool mode while the following No. is selected.
			At least one of the data should be 224.	Adjustment No. 00, 01, 02.
			< Specification > Video color temperature (Cool) x=0.268±0.005 y=0.283±0.005 (Color temp:12000°K±10MPCD)	

Item	Video Color Temperature Adjustment (Normal)	Adj. point	I^2C

Adjustment Preparations		Adjustment Procedures		Remarks
(1)	Set the output of signal generator to white raster. (Ratio : 100%)	(1)	Perform the following adjustment with the remote control.	Color temperature should be adjusted under the condition in which the screen is the brightest, thus the initial value of adjustment is it's maximum value.
(2)	Component signal (480i) Video level : 0.714Vp-p SYNC : 0.286Vp-p Set-up level : 0V	(2)	Set the CRT color analyzer (CA100) at the center of the panel.	Only reducing the brightness controls the adjustment, thus weaken the brighter color to adjust.
(3)	Set Picture MENU to [RESET]	(3)	Ensure that adjustment No. 3, 4, 5 are all set as 224.	
(4)	Set into Factory adjustment mode.	(4)	After receiving Video signal, step down the two (or one) among adjustment No. 3, 4, 5 and adjust the value as shown below. At least one of the data should be 224. < Specification > Video color temperature (Normal) x=0.285±0.005 y=0.293±0.005 (Color Temp:9300°K±0MPCD)	Color temperature is at Normal mode while the following No. is selected. Adjustment No. 03, 04, 05

Item	Video Color Temperature Adjustment (Warm)	Adj. point	I^2C

Adjustment Preparations		Adjustment Procedures		Remarks
(1)	Set the output of signal generator to white raster. (Ratio : 100%)	(1)	Perform the following adjustment with the remote control.	Color temperature should be adjusted under the condition in which the screen is the brightest, thus the initial value of adjustment is it's maximum value.
(2)	Component signal (480i) Video level : 0.714Vp-p SYNC : 0.286Vp-p Set-up level : 0V	(2)	Set the CRT color analyzer (CA100) at the center of the panel.	Only reducing the brightness controls the adjustment, thus weaken the brighter color to adjust.
(3)	Set Picture MENU to [RESET]	(3)	Set Color Temperature of PICTURE MENU to[WARM].	
(4)	Set into Factory adjustment mode.	(4)	Ensure that adjustment No. 6, 7, 8 are all set as 224.	
		(5)	After receiving Video signal, step down the two (or one) among adjustment No. 6, 7, 8 and adjust the value as shown below. At least one of the data should be 224. < Specification > Video color temperature (WARM) x=0.314±0.005 y=0.327±0.005 (Color Temp:6500°K±0MPCD)	Color temperature is at Warm mode while the following No. is selected. Adjustment No. 06, 07, 08

Item	Video Color Temperature Adjustment (B/W)	Adj. point	I^2C

Adjustment Preparations		Adjustment Procedures		Remarks
(1)	Set the output of signal generator to white raster. (Ratio : 100%)	(1)	Perform the following adjustment with the remote control.	Color temperature should be adjusted under the condition in which the screen is the brightest, thus the initial value of adjustment is it's maximum value.
(2)	Component signal (480i) Video level : 0.714Vp-p SYNC : 0.286Vp-p Set-up level : 0V	(2)	Set the CRT color analyzer (CA100) at the center of the panel. Set Color Temperature of PICTURE MENU to[B/W].	Only reducing the brightness controls the adjustment, thus weaken the brighter color to adjust.
(3)	Set Picture MENU to [RESET]	(3)	Ensure that adjustment No. 9, 10, 11 are all set as 224.	
(4)	Set into Factory adjustment mode.	(4)	After receiving Video signal, step down the two (or one) among adjustment No. 9, 10, 11 and adjust the value as shown below.	Color temperature is at Cool mode while the following No. is selected.
			At least one of the data should be 224.	Adjustment No. 00, 01, 02.
			< Specification > Video color temperature (B/W) x=0.335±0.005 y=0.343±0.005 (Color Temp:5400°K±0MPCD)	

Item	PC Color Temperature Adjustment			Adj. point	I^2C
Adjustment Preparations		Adjustment Procedures		Remarks	
(1)	This adjustment should be done after video color temperature adjustment.	(1)	Perform the following adjustment with the remote control.	Environment : 20 lux or less	
(2)	Set into Factory Adjustment mode.	(2)	Set the CRT color analyzer (CA100) at the center of the panel.		
(3)	Input : RGB2 [D-sub] Signal : VGA (75) 0.7V (No set up) Window ratio : 100%	(3)	Ensure that the adjustments No. 12, 13, 14 are all set as 224.	Color temperature should be adjusted under the condition in which the screen is the brightest, thus the initial value of adjustment is it' s maximum value.	
(4)	Confirm that the screen size is 'Full' .	(4)	After receiving PC signal, step down the two (or one) among adjustments No. 12, 13, 14 and adjust the value as shown below. At least one of the data should be 224. < Specification > PC color temperature (Cool) x=0.268±0.005 y=0.283±0.005 (Color temp:12000°K±10MPCD)	Only reducing the brightness controls the adjustment, thus weaken the brighter color to adjust. Color temperature is at Cool mode while the following No. is selected. Adjustment No. 12, 13, 14	

(5) Write adjustment value of video color temperature to the following NO.

Video Color Temperature		PC Color Temperature
No.3 Data	⇒	No.15 Data
No.4 Data	⇒	No.16 Data
No.5 Data	⇒	No.17 Data
No.6 Data	⇒	No.18 Data
No.7 Data	⇒	No.19 Data
No.8 Data	⇒	No.20 Data
No.9 Data	⇒	No.21 Data
No.10 Data	⇒	No.22 Data
No.11 Data	⇒	No.23 Data

6. Troubleshooting

● How to get to Burn-in mode

This mode displays the test patterns of some single color raster in turn. These signals are from built-in generator of PDP panel. So it can be presumed that maybe the panel has some trouble when the screen of Burn-in mode is abnormal.

Using the front control buttons with the set turned off (standby) can activate this mode.

Press the SUB-POWER(⏻) button, INPUT SELECT(⏎) button and VOLUME DOWN(−) button at the same time, and hold for more than 5 seconds.

The set turns on with single color raster and the OSD of [BURN IN: ON].

To escape from this mode, press the SUB-POWER(⏻) button, INPUT SELECT(⏎) button and ▲ button at the same time, and hold for more than 5 seconds. Burn-in mode will be released.

● How to recover the remote and front key function

If remote and front key cannot operate after miss set special function by front keys, these functions can recover by below method.

Select No.175 and data set from [0] to [1].

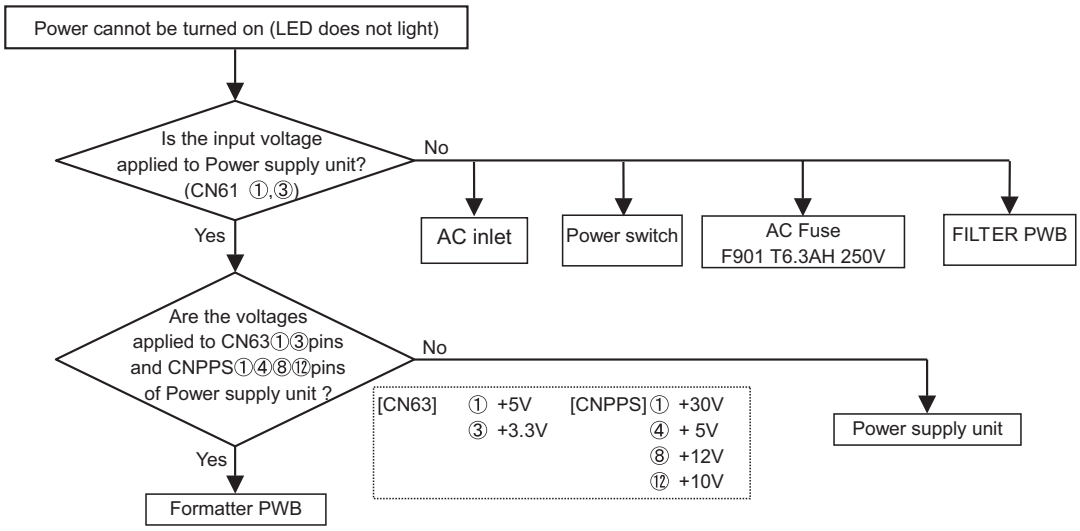
Or

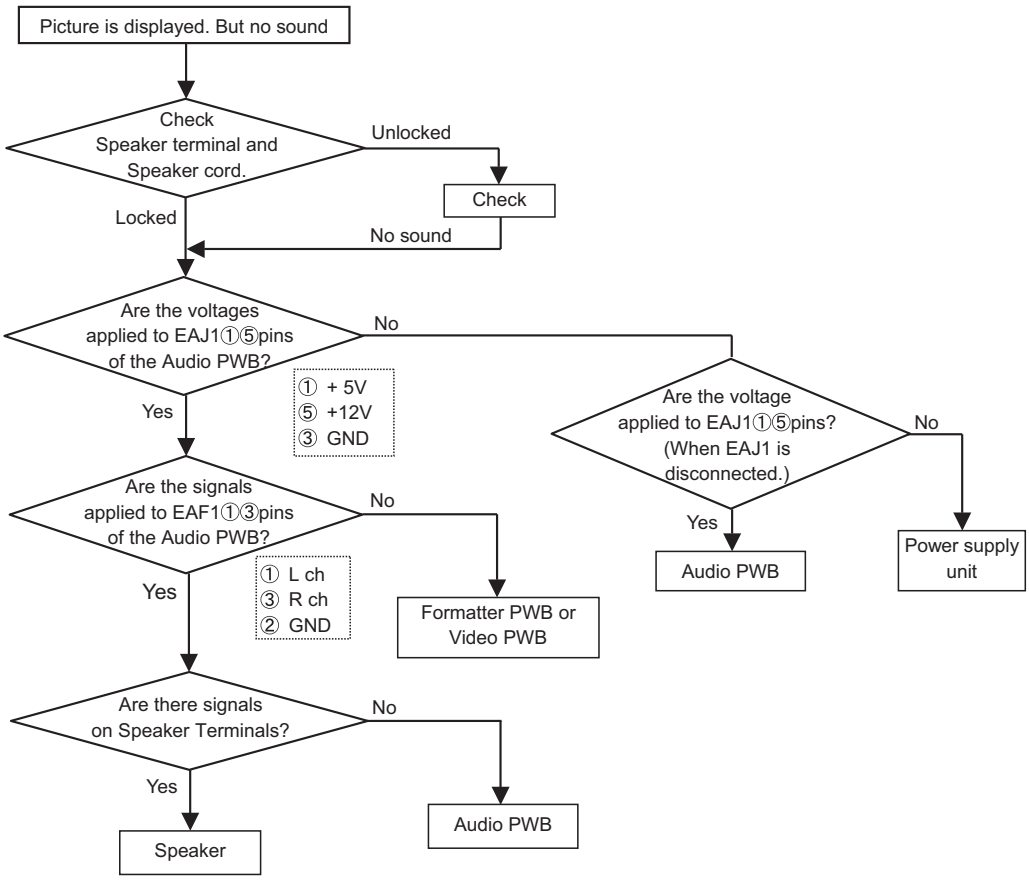
Press the SUB-POWER(⏻) button and ► button at the same time, and hold for more than 5 seconds.

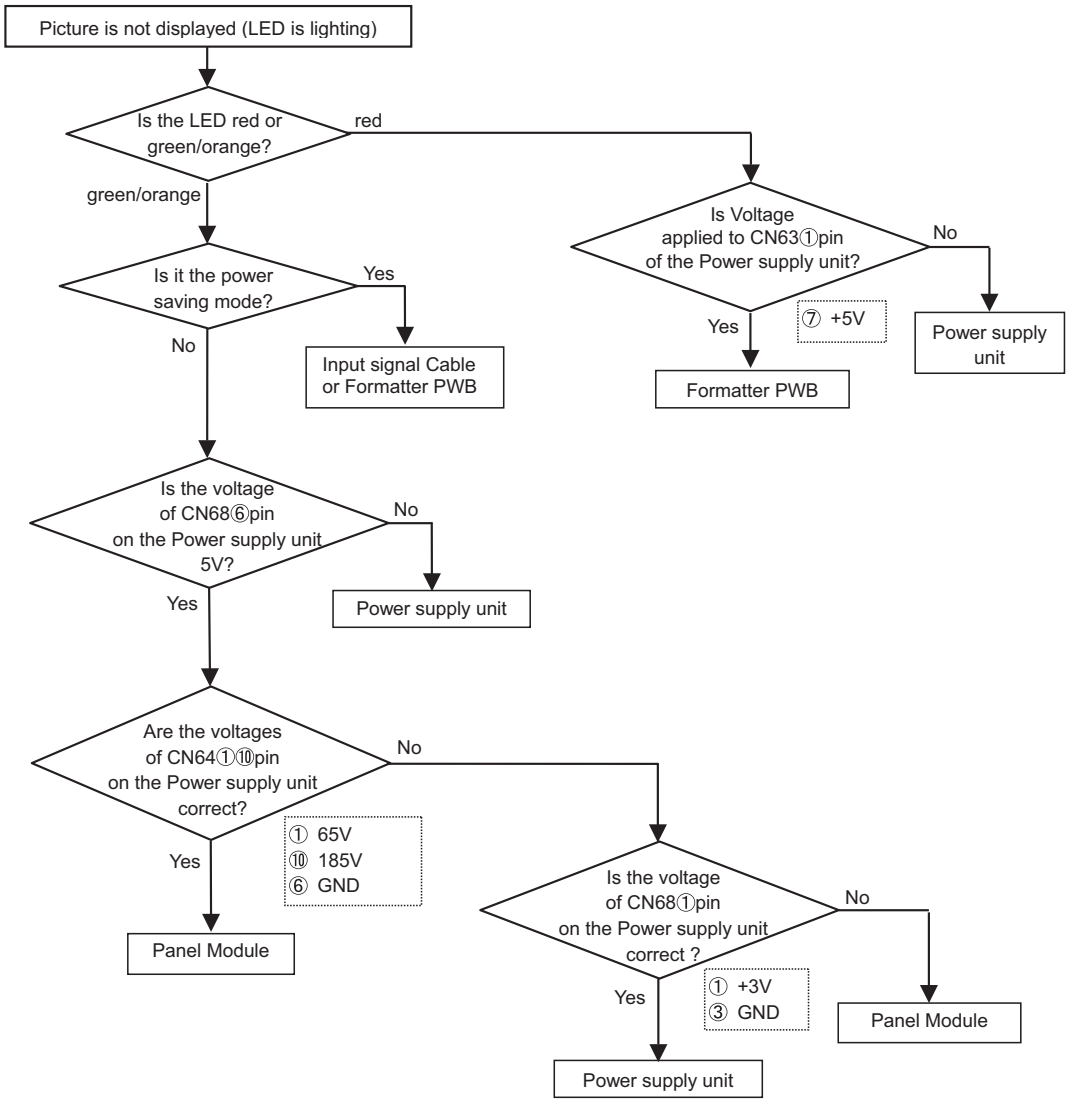
Note : If the following operation is performed , it becomes impossible to operate remote and front key.

Press the SUB-POWER(⏻) button, INPUT SELECT(⏎) button and ► button at the same time, and hold for more than 5 seconds.

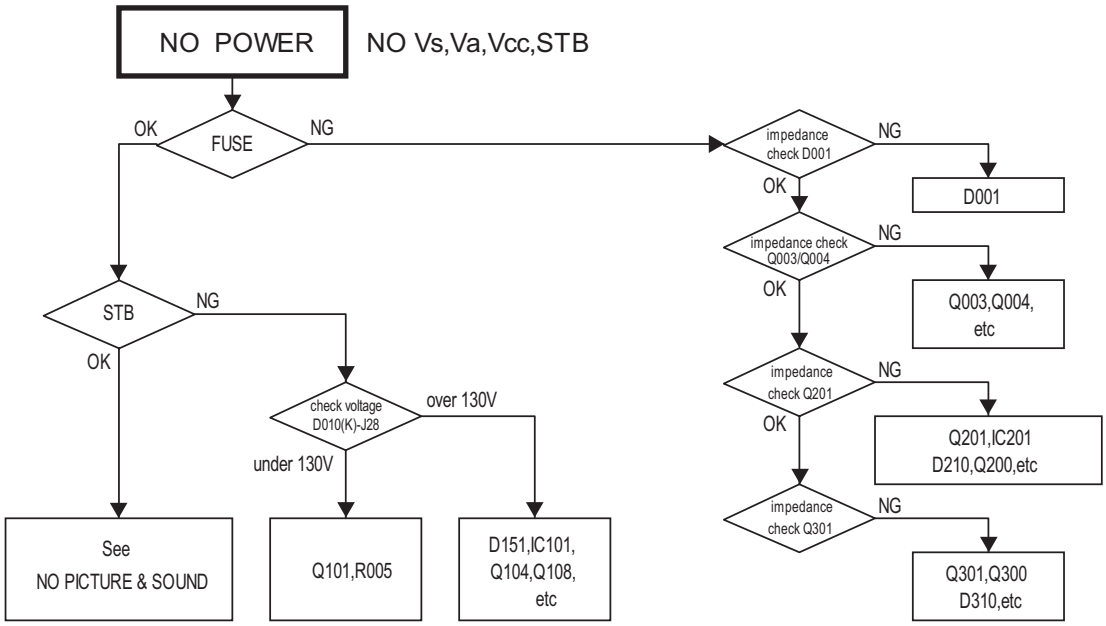
● Flow Chart

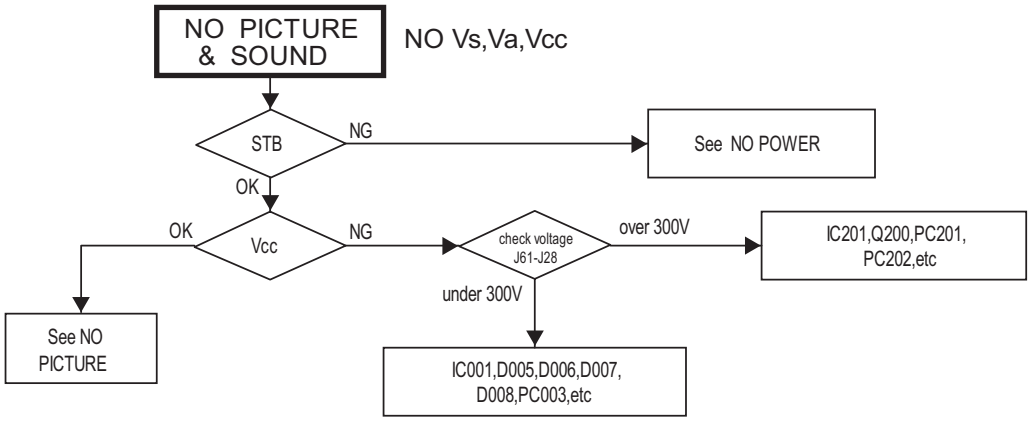

Power cannot be turned on (LED does not light)
Is the input voltage applied to Power supply unit? (CN61 ①,③)
No
AC inlet
Power switch
AC Fuse F901 T6.3AH 250V
FILTER PWB
Yes
Are the voltages applied to CN63①③pins and CNPPS①④⑧⑫pins of Power supply unit ?
No
[CN63] ① +5V ③ +3.3V
[CNPPS] ① +30V ④ + 5V ⑧ +12V ⑫ +10V
Power supply unit
Yes
Formatter PWB

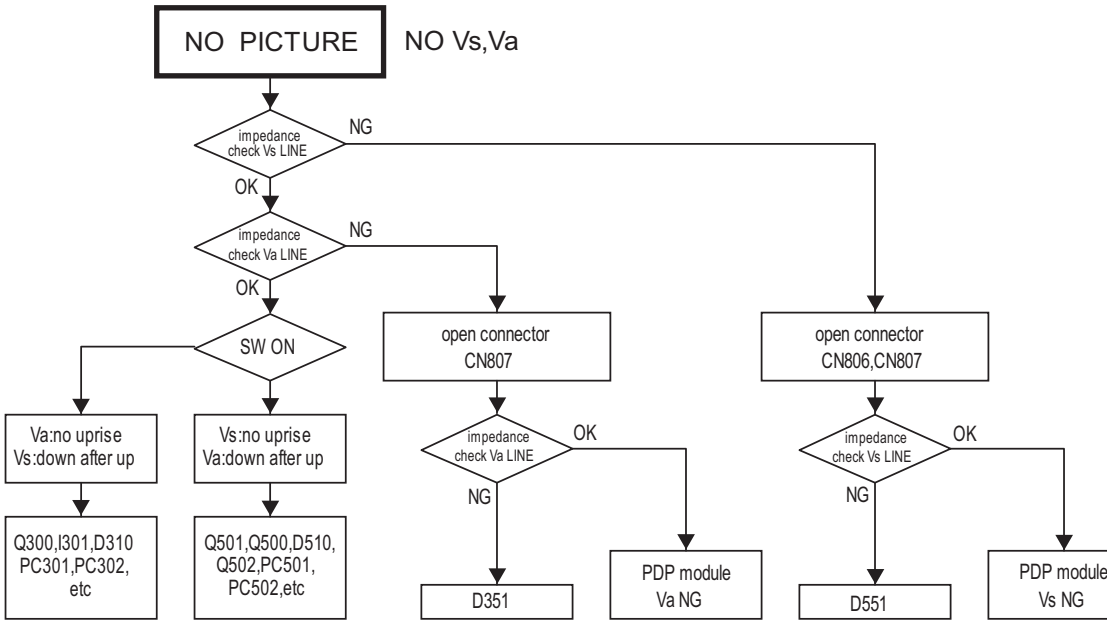

Picture is displayed. But no sound
Check Speaker terminal and Speaker cord.
Unlocked
Check
Locked
No sound
Are the voltages applied to EAJ1①⑤pins of the Audio PWB?
No
① + 5V ⑤ +12V ③ GND
Yes
Are the voltage applied to EAJ1①⑤pins? (When EAJ1 is disconnected.)
No
Yes
Audio PWB
Power supply unit
Are the signals applied to EAF1①③pins of the Audio PWB?
No
① L ch ③ R ch ② GND
Yes
Formatter PWB or Video PWB
Are there signals on Speaker Terminals?
No
Yes
Audio PWB
Speaker


Picture is not displayed (LED is lighting)
Is the LED red or green/orange?
red
green/orange
Is Voltage applied to CN63①pin of the Power supply unit?
No
Yes
⑦ +5V
Power supply unit
Formatter PWB
Is it the power saving mode?
Yes
No
Input signal Cable or Formatter PWB
Is the voltage of CN68⑥pin on the Power supply unit 5V?
No
Yes
Power supply unit
Are the voltages of CN64①⑩pin on the Power supply unit correct?
No
Yes
① 65V
⑩ 185V
⑥ GND
Panel Module
Is the voltage of CN68①pin on the Power supply unit correct ?
No
Yes
① +3V
③ GND
Panel Module
Power supply unit

[POWER BOARD]


NO POWER
NO Vs,Va,Vcc,STB
FUSE
OK
NG
impedance check D001
D001
impedance check Q003/Q004
Q003,Q004, etc
impedance check Q201
Q201,IC201 D210,Q200,etc
impedance check Q301
Q301,Q300 D310,etc
STB
check voltage D010(K)-J28
over 130V
under 130V
See NO PICTURE & SOUND
Q101,R005
D151,IC101, Q104,Q108, etc


NO PICTURE & SOUND
NO Vs,Va,Vcc
STB
See NO POWER
Vcc
check voltage J61-J28
over 300V
IC201,Q200,PC201, PC202,etc
under 300V
See NO PICTURE
IC001,D005,D006,D007, D008,PC003,etc


NO PICTURE
NO Vs,Va
impedance check Vs LINE
impedance check Va LINE
SW ON
open connector CN807
open connector CN806,CN807
Va:no uprise Vs:down after up
Vs:no uprise Va:down after up
Q300,I301,D310 PC301,PC302, etc
Q501,Q500,D510, Q502,PC501, PC502,etc
D351
PDP module Va NG
D551
PDP module Vs NG

7. Self-Diagnosis Function

● PDP panel self-diagnosis function

Refer to PDP panel service manual.

● Signal circuit self-diagnosis function

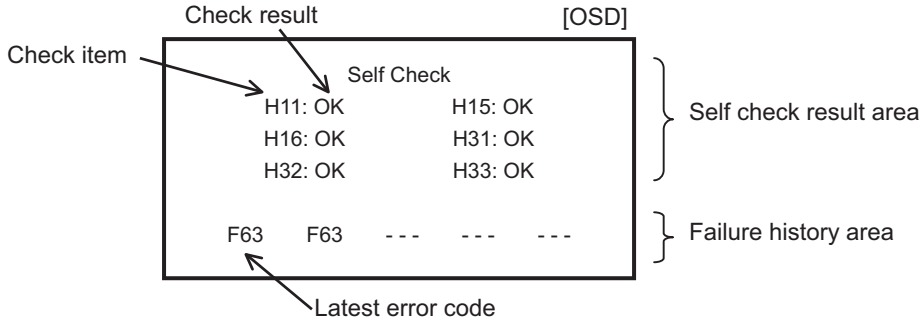
This function is for the failure of the signal circuit, for example the phenomenon as below:
"Sometimes power turns off abnormally." "Sometimes picture disappears abnormally."
To enter to this Self-Diagnosis mode, follow the next steps:

Preparation:

1) The Power Cord should be connected to AC line and the Main Power switch should be turned on.
2) Turn the power off by the SUB-POWER(⏻) button of the monitor or the remote control.

Procedure:

1) Press the SUB-POWER(⏻) button and ▲ button on the bottom of the monitor at the same time, and keep it for more than 5 seconds after the power turned on.
2) The monitor will be turned on, and it will display On-Screen Display of the Self-check result and the failure history as below.
3) Any operation would cancel the Self -Diagnosis mode.
4) The following table shows the OSD symbols and contents of failure PWB in which failure most probably would be allocated according to the number of blinks.

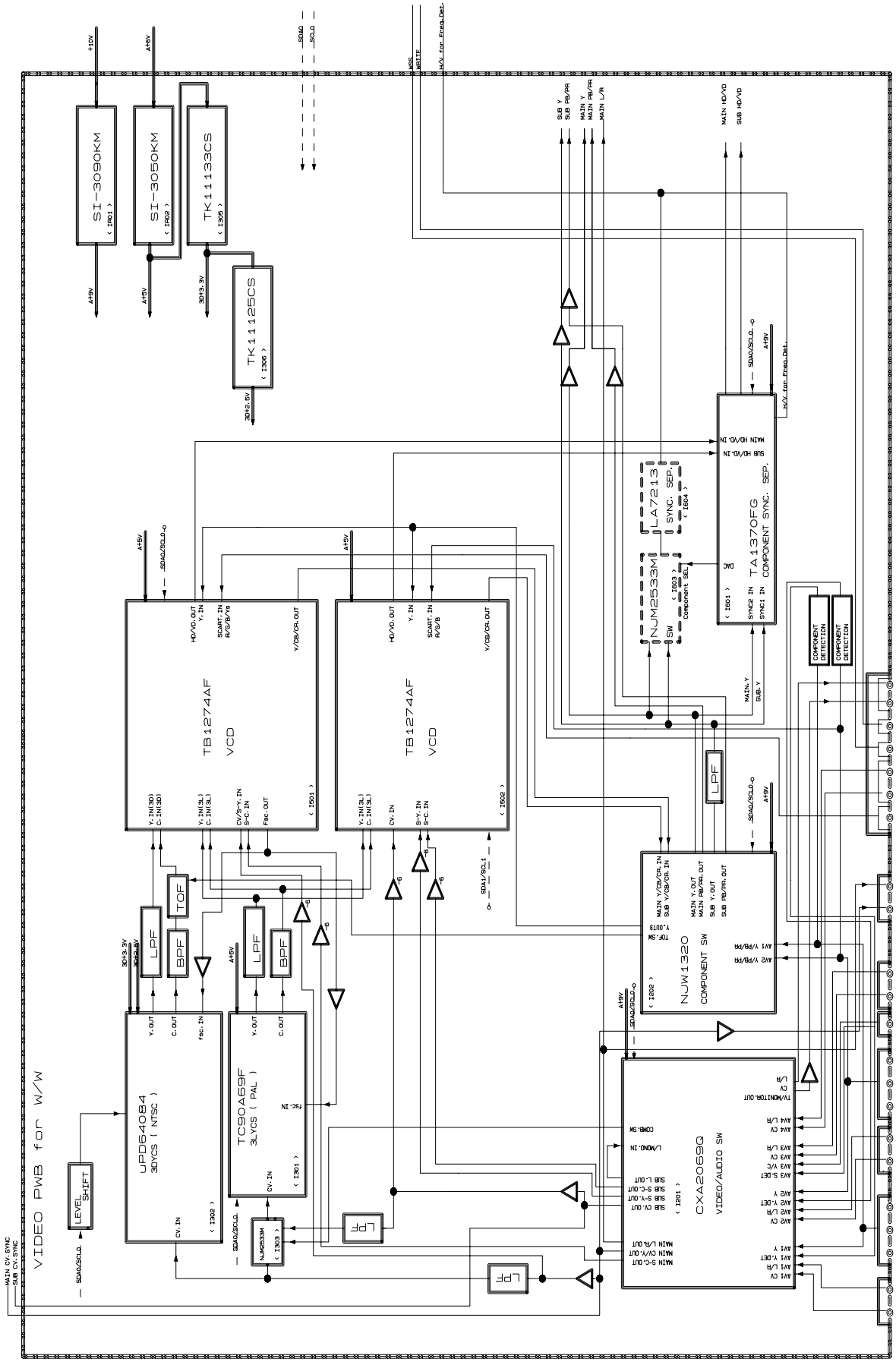


Code	stored up in failure history	Self checking item	Problem	Phenomenon	Cause
C10(*	–	–	No sync. (Snow noise)	OSD of " ! Check Antenna " appears.	No connection of ANT cable Preset tuning is not yet
H11(*	–	○	Tuner problem	Cannot receive the main signal from antenna	Communication error of U101
H15	–	○	Composite video SW IC problem	Cannot receive picture and audio Cannot change input mode	Communication error of I201
H16	–	○	Component video SW IC problem	No component picture Cannot change input mode	Communication error of I202
H31	–	○	Color demodulator IC problem	Abnormal color Dark picture	Communication error of I501
H32	–	○	Sync. separator IC problem	Unsynchronized picture	Communication error of I601
H33	–	○	3D Y/C separator IC problem	Abnormal color Dark picture / No picture	Communication error of I302
H71(*	–	○	T/Text IC problem	No T/Text No picture	Communication error of IT01
H72(*	–	○	Sound MPX IC problem	No sound from antenna Cannot change MPX sound	Communication error of IN01
F63	○	–	I^2C-bus latch problem	Cannot store setting data (Ex. Channel, Volume etc.)	SCL3/SDA3 latched up

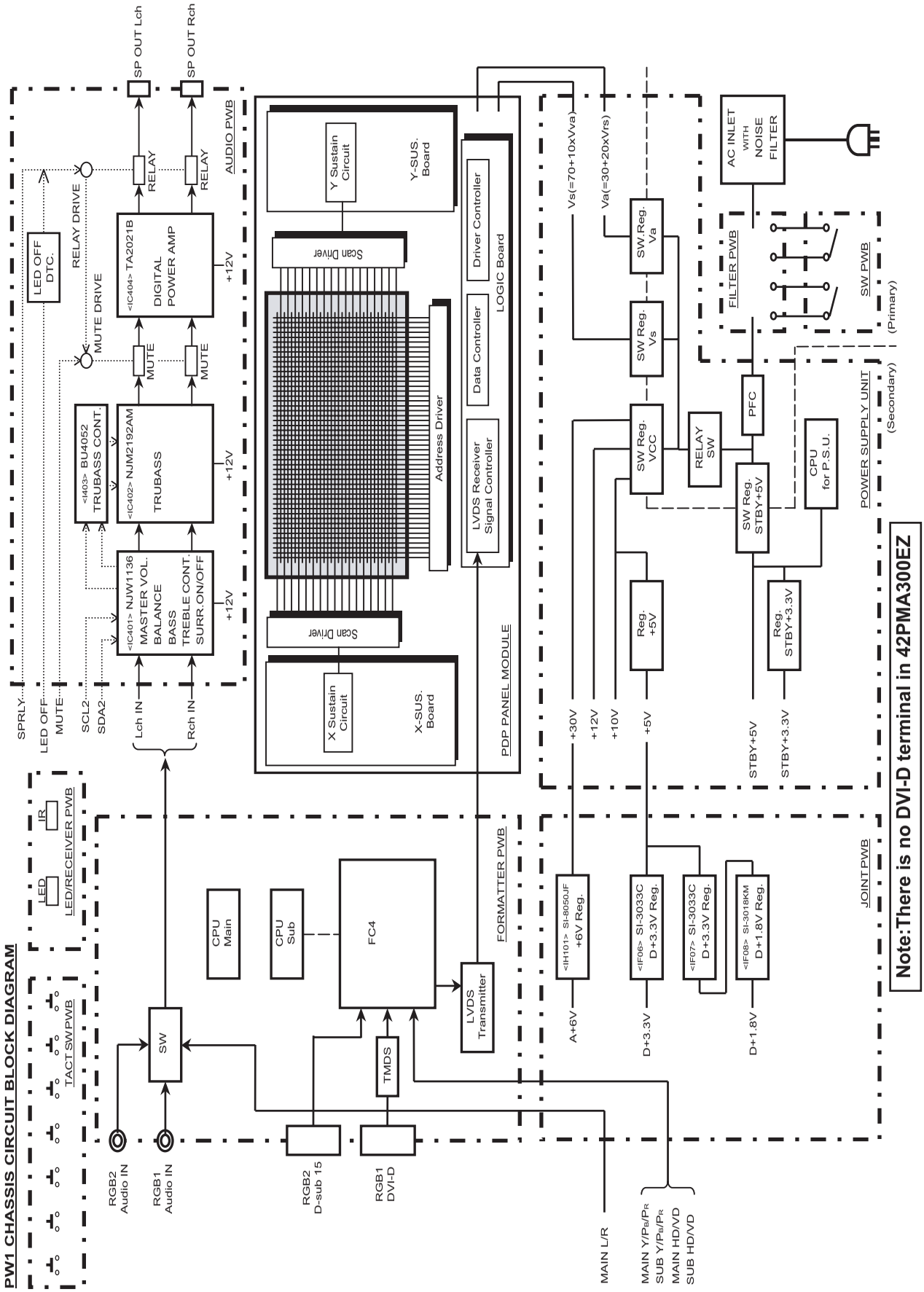
If you clear history of failure, make FACTORY RESET: enter the factory setting mode; press the SUB-POWER(⏻) button, INPUT SELECT(⏎) button and ▲ button on the bottom of the monitor at the same time. And keep it pressed for more than 5 seconds after the power is turned on.

8. Block diagram

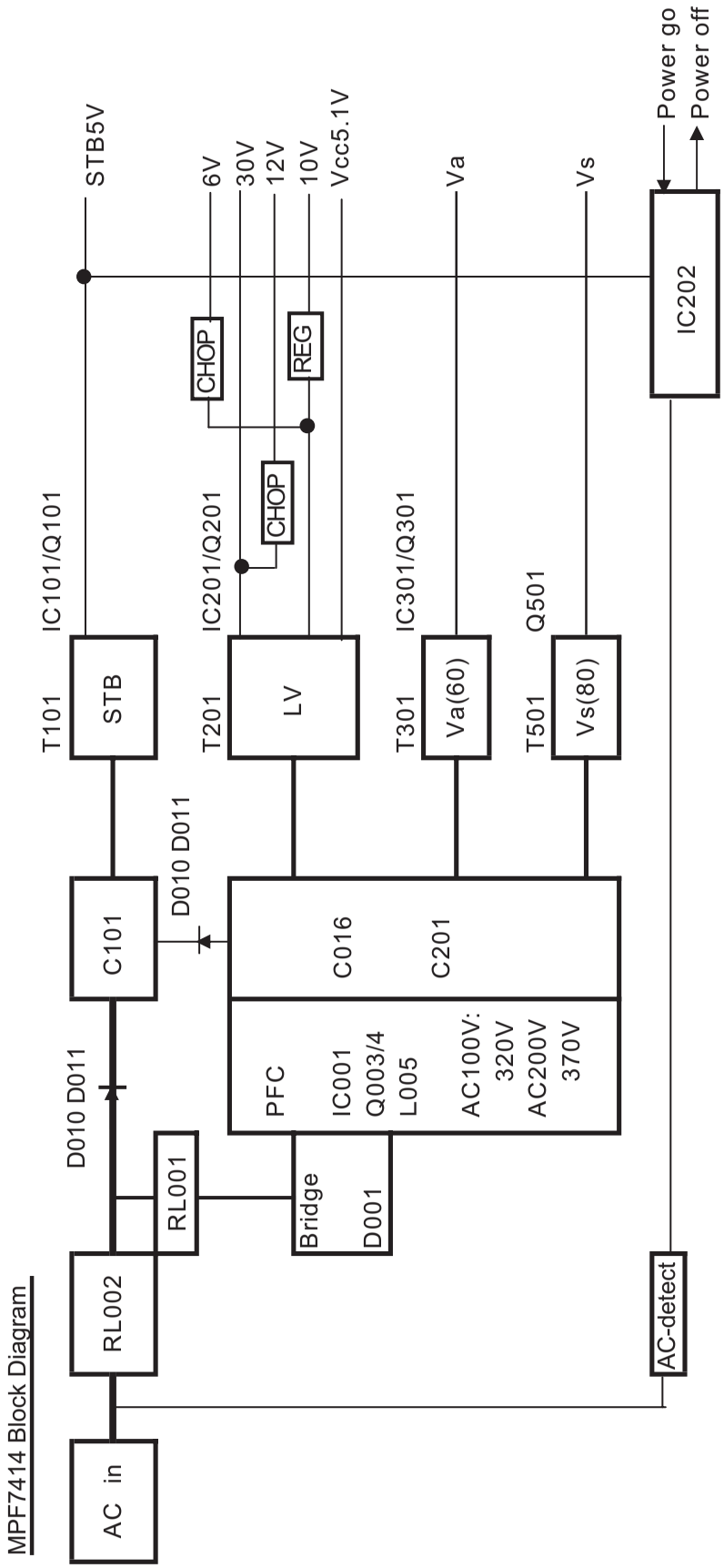
[Block diagram 1]



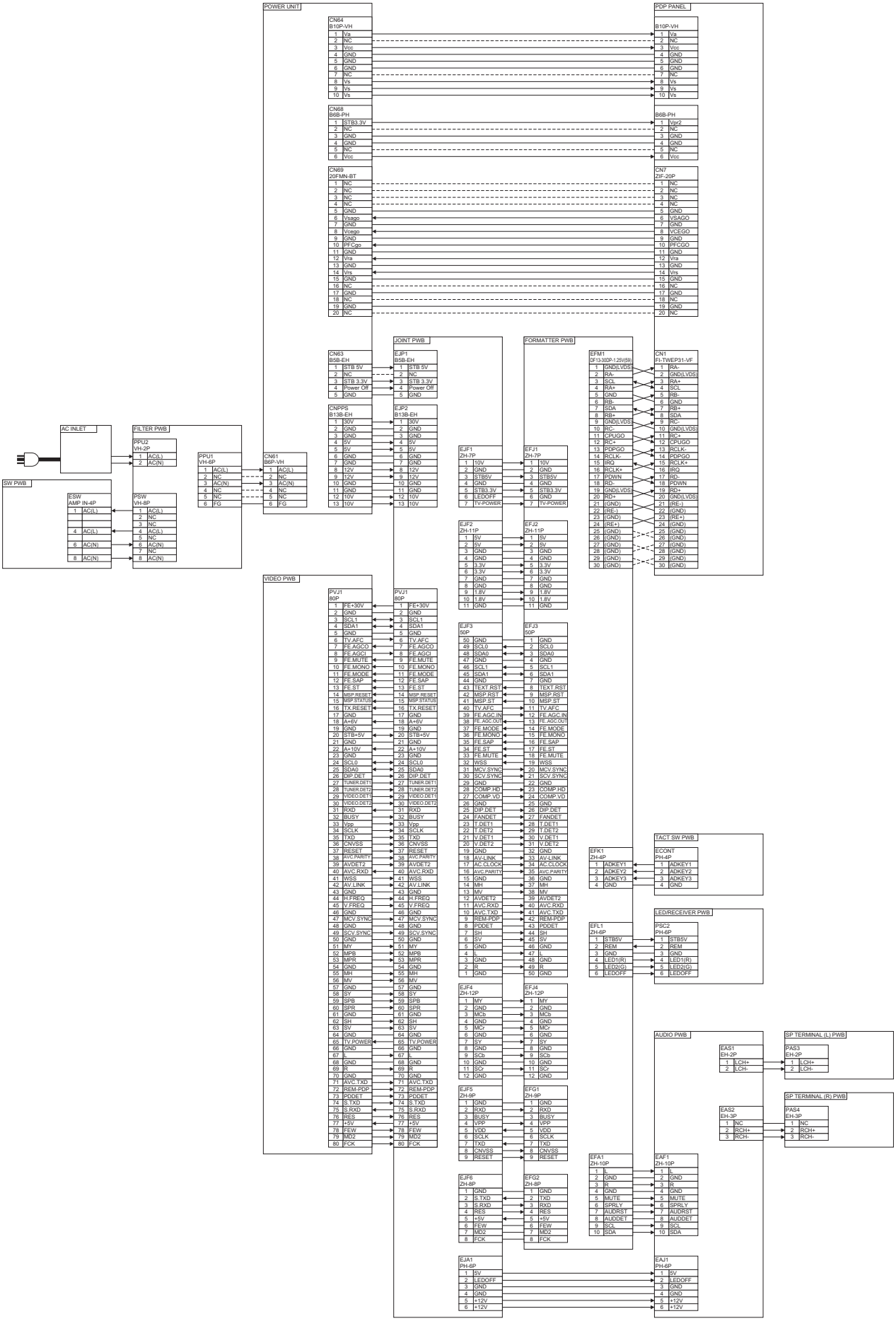
[Block diagram 2]



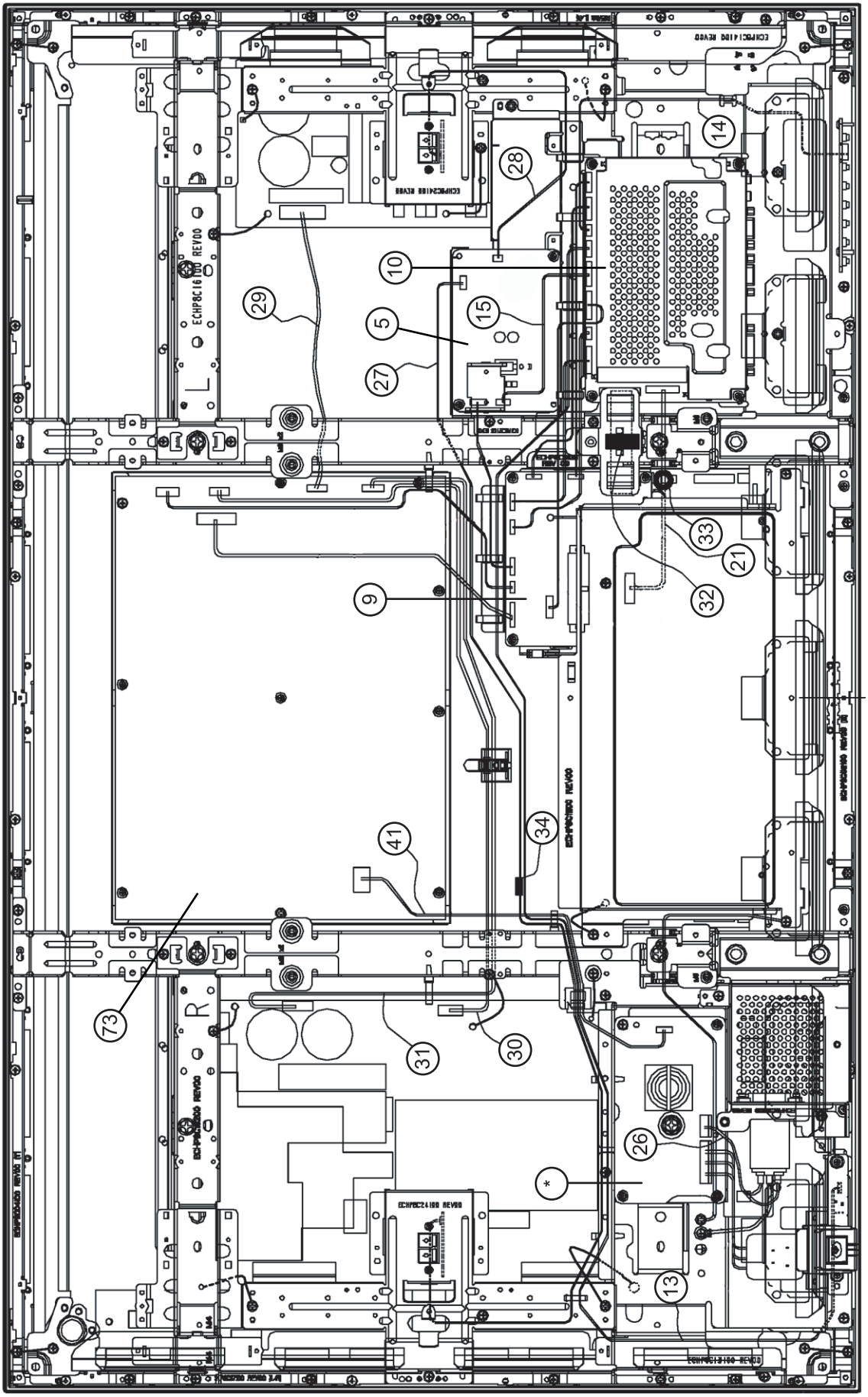
[Block diagram 3 (POWER BOARD)]



9. Connector connection diagram

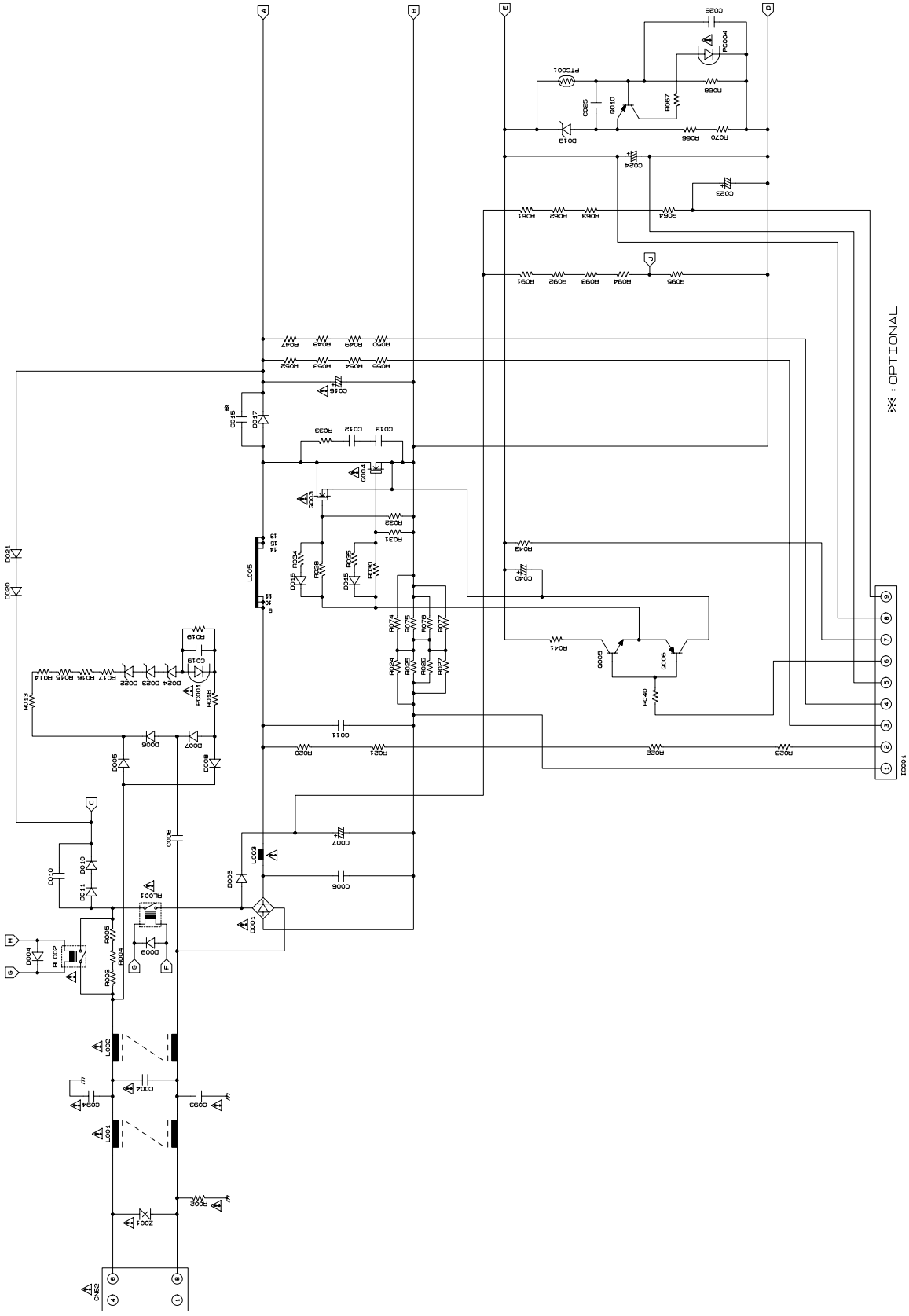


10. Wiring diagram

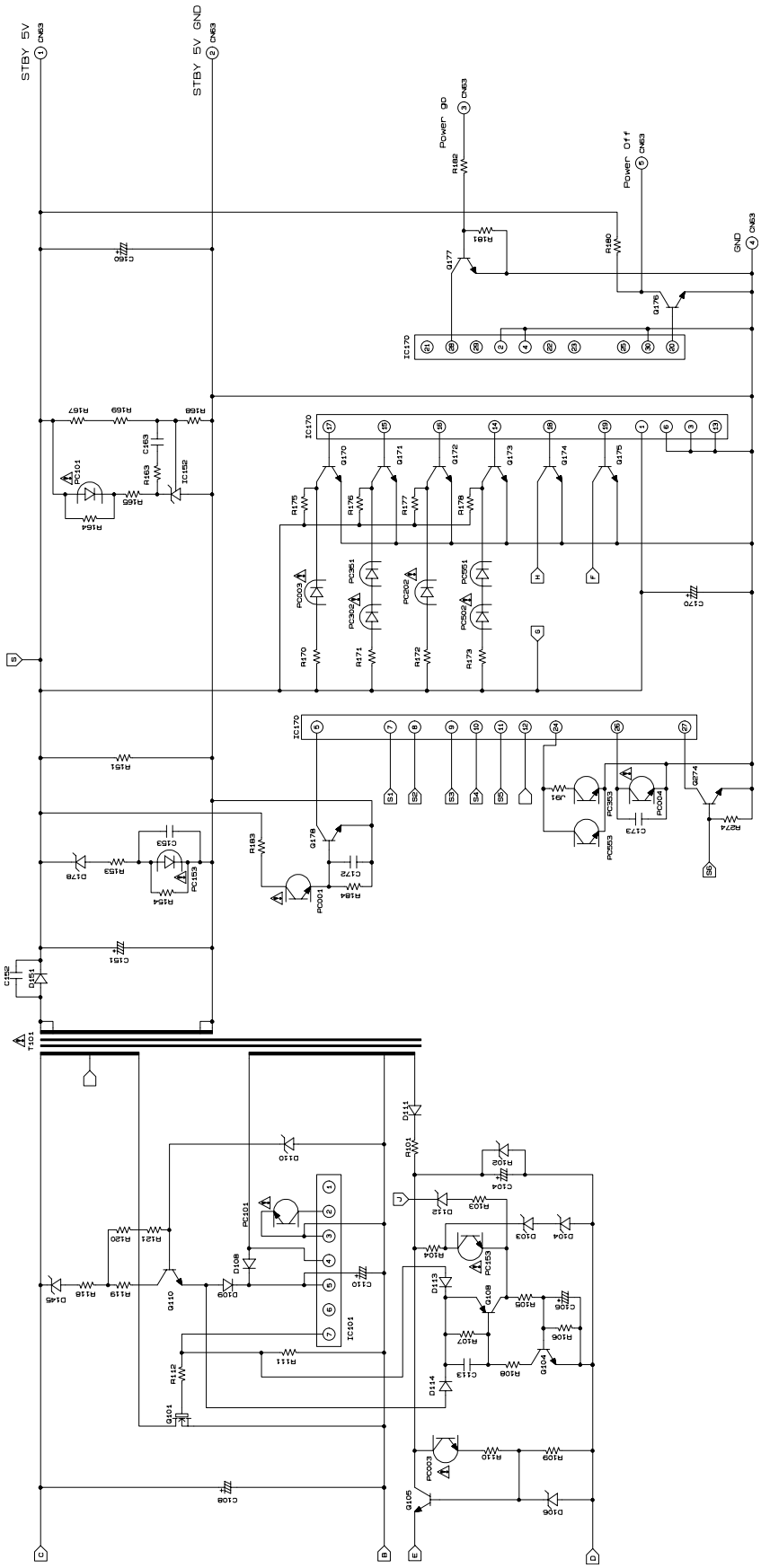


11. Basic circuit diagram

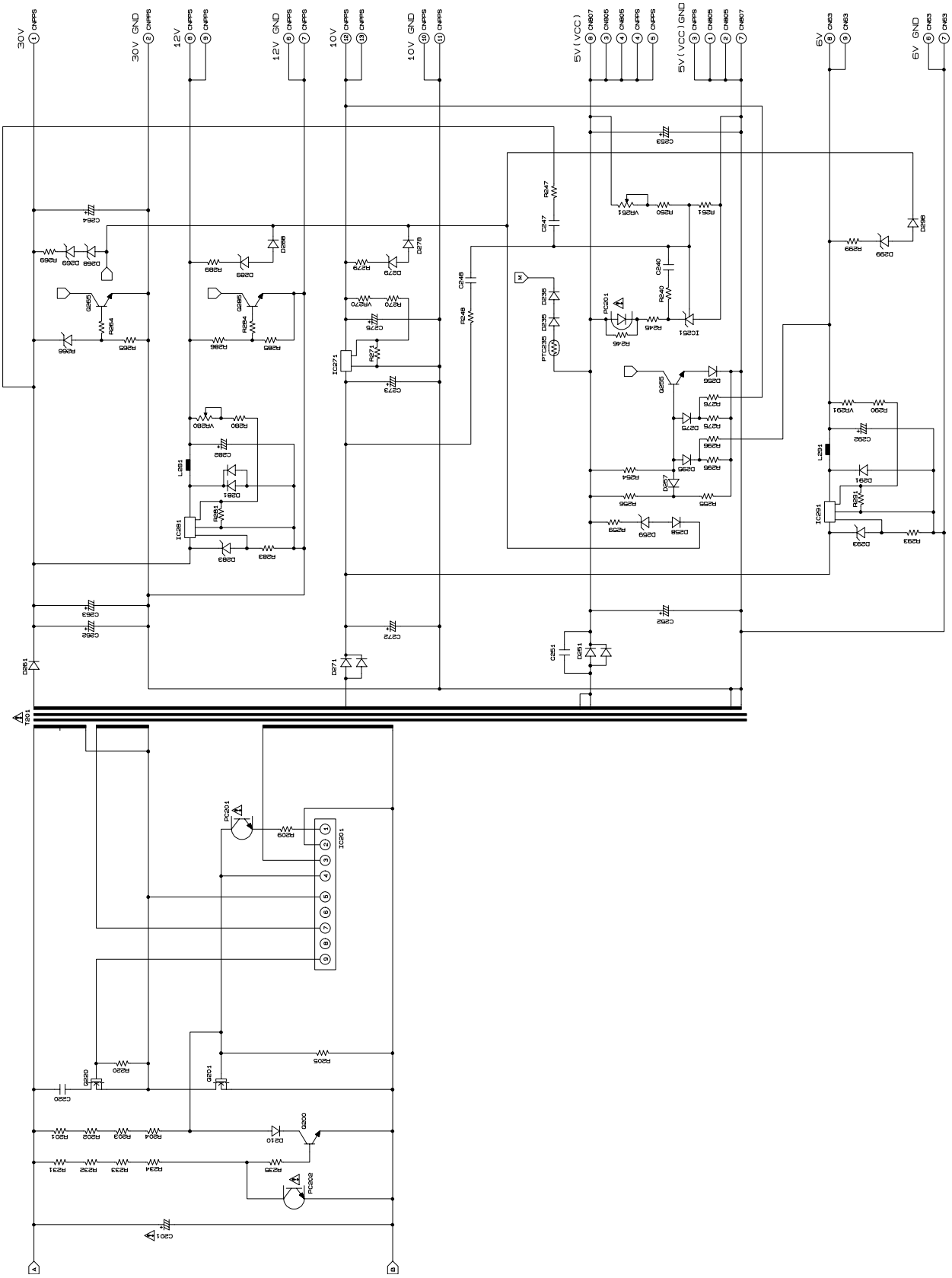
[POWER BOARD Basic circuit diagram 1]



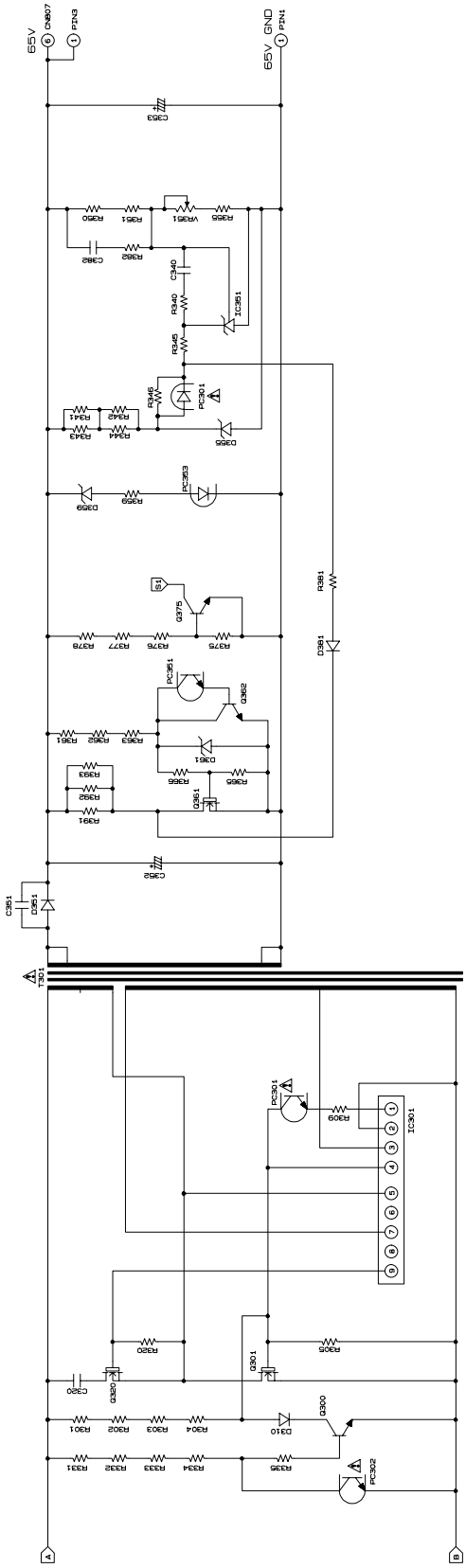
[POWER BOARD Basic circuit diagram 2]



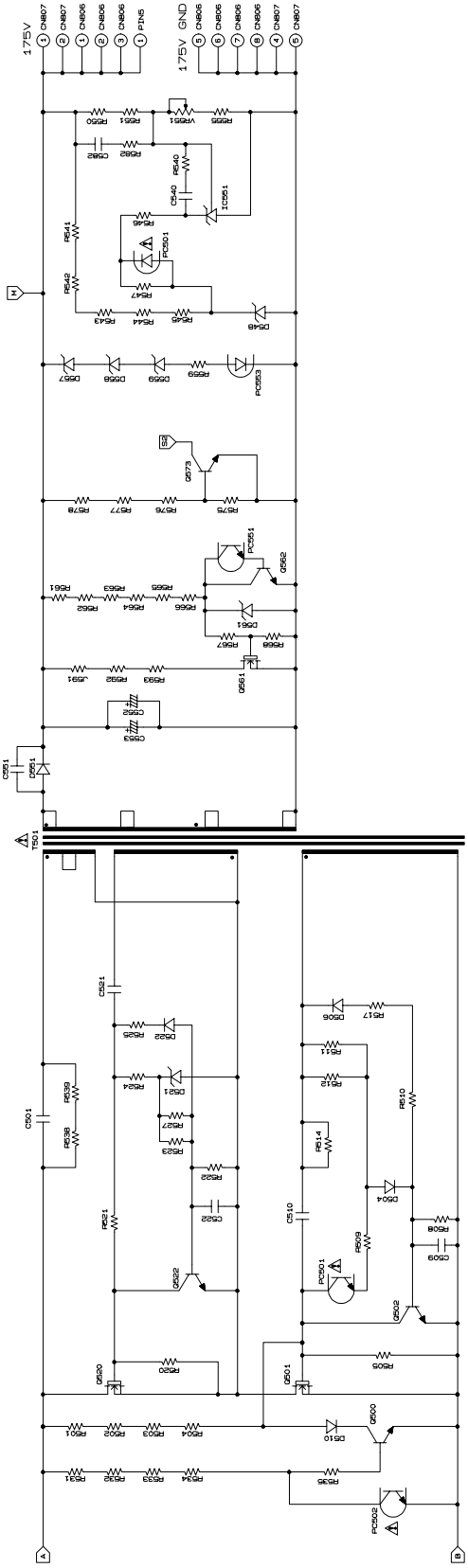
[POWER BOARD Basic circuit diagram 3]



[POWER BOARD Basic circuit diagram 4]

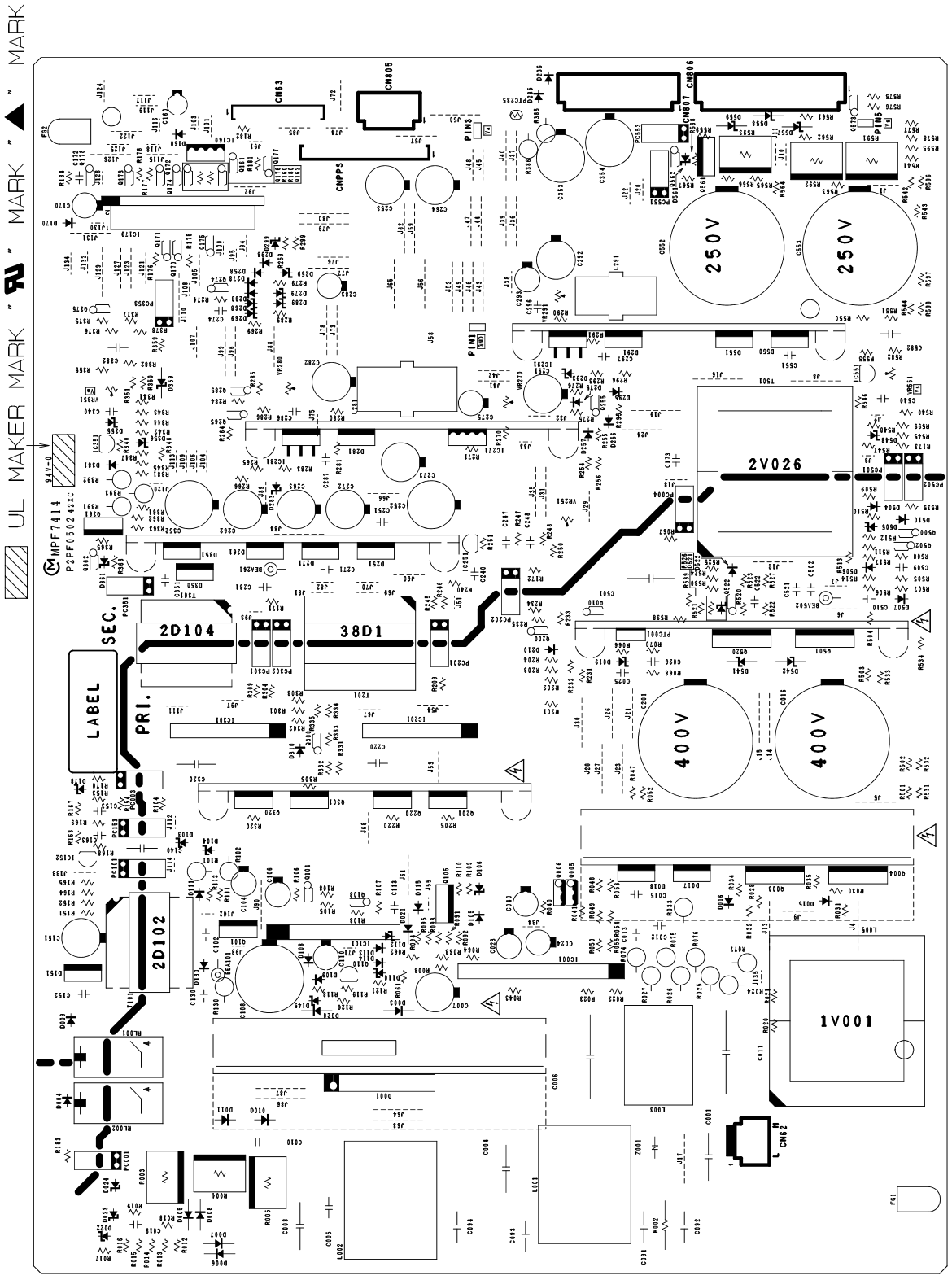


[POWER BOARD Basic circuit diagram 5]

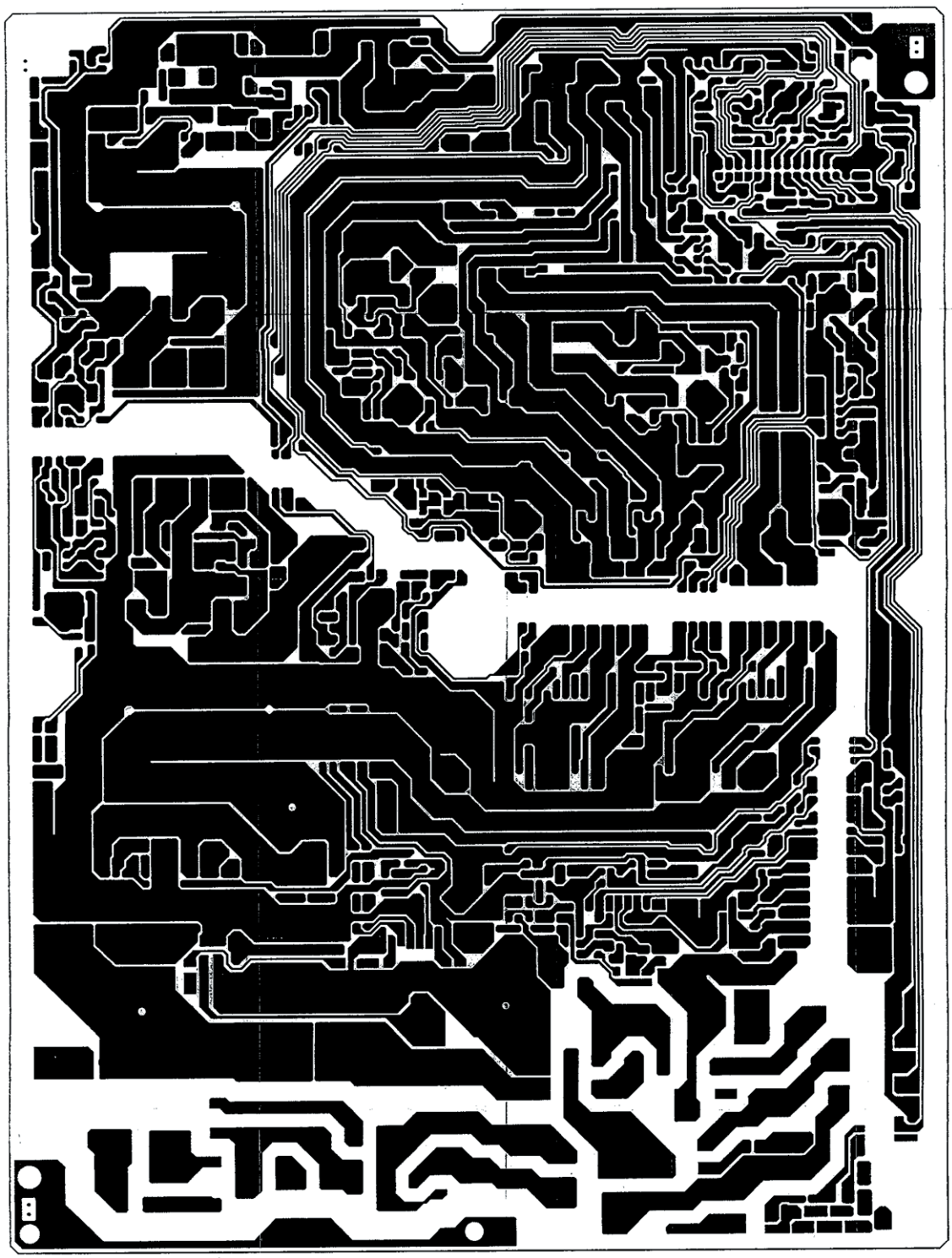


12. Printed wiring board diagram

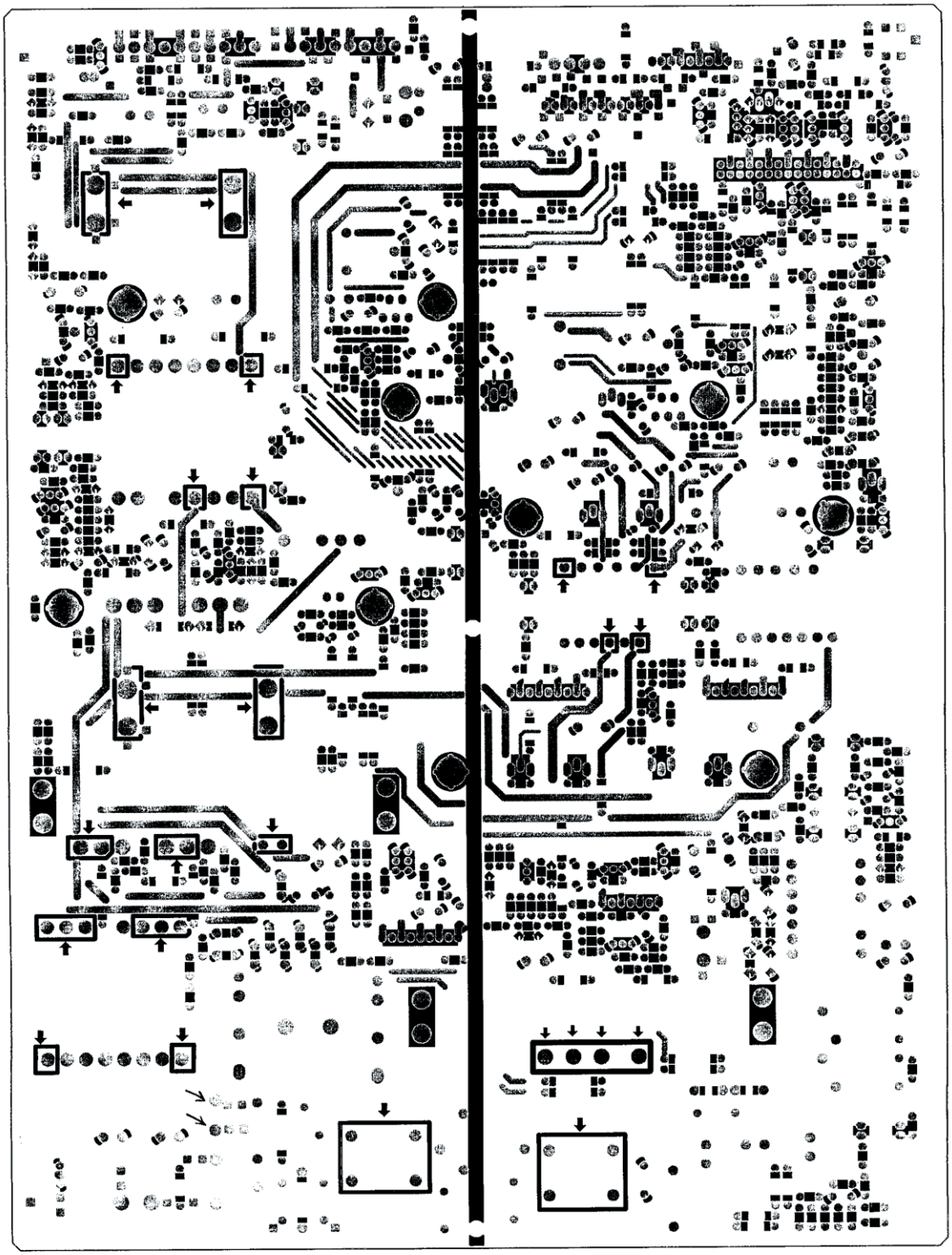
[POWER BOARD Printed wiring board diagram 1]



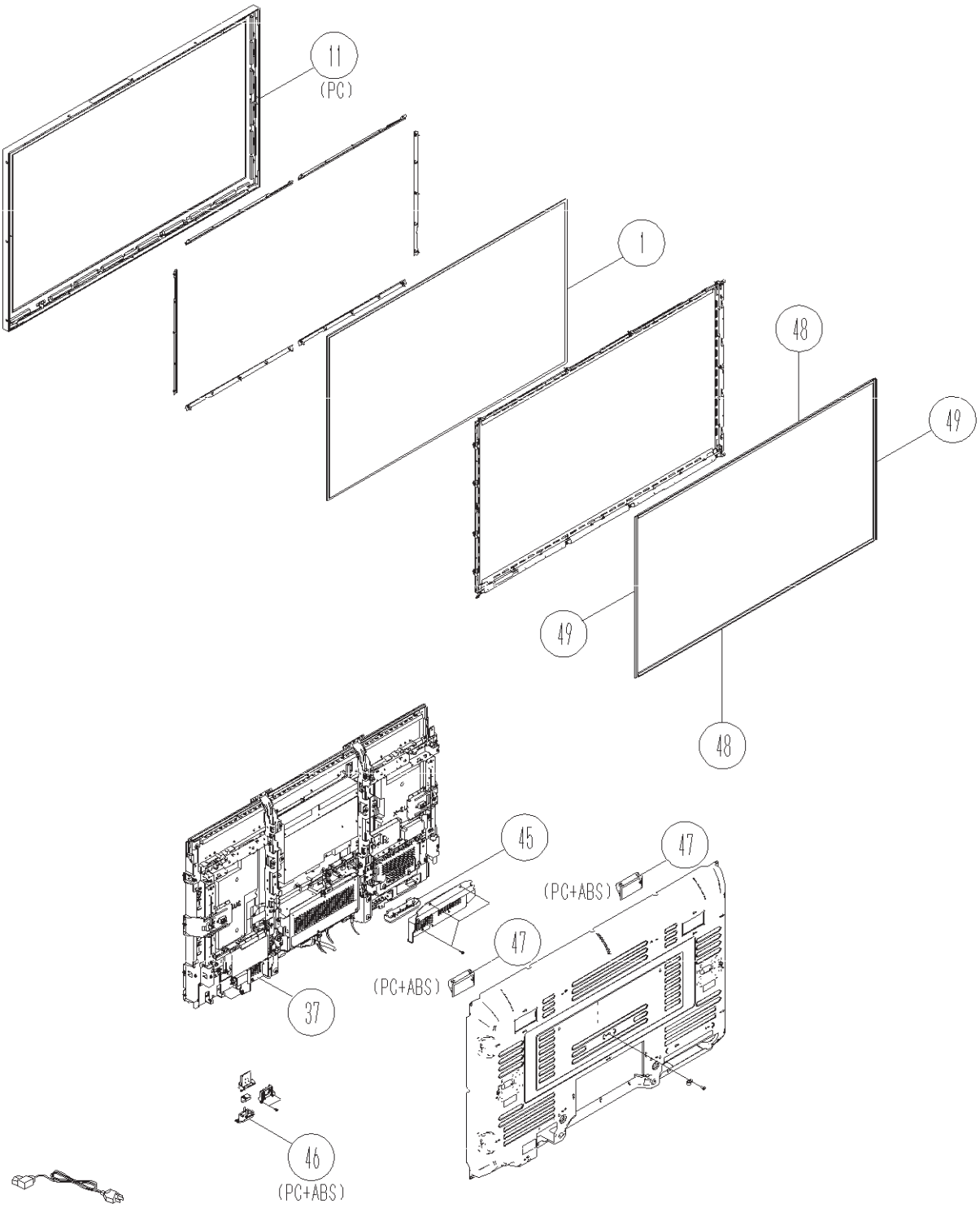
[POWER BOARD Printed wiring board diagram 2]



[POWER BOARD Printed wiring board diagram 3]



13. Disassembly diagram



The codes in brackets shown in the disassembly diagram express the name of materials.
The key o the codes and materials is shown on the table below.

Code	Material
ABS	Acrylonitrile Butadiene Styrene
Fe	Steel
PS	Polystyrene
PC+ABS	Polycarbonate+Acrylonitrile Butadiene Styrene

14. Parts list

PRODUCT SAFETY NOTE : Components marked with a ⚠ have special characteristics important to safety. Before replacing any of there components,read carefully,the CAUTION FOR SAFETY of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

SYMBOL No.	PART No.	DESCRIPTION	Spec
1		PDP FILT (*from Japan)	42 BRIDGESTONE PD4
2		PCBA TACT KEY/B	VPD-K421 HP8C
3		PCBA FILTER/B	VPD-P421 HP8C
4		PCBA SW/B	VPD-421PW HP8C
5		PCBA AUDIO/B	VPD-421AU HP8C
6		PCBA LED/B	VPD-421LED HP8C
7		PCBA SPL/B	VPD-421SPL HP8C
8		PCBA SPR/B	VPD-421SPR HP8C
9		PCBA JOINT/B	VPD-J421 HP8C
10		FIRMWARE FORMATTER/B	VPD-L421 HM8E J88 (W/O_DVI)
11		BEZEL (SILVER)	MCG28+MSV50 ABS 94
12		LINE FILT	HP8C SUP-C14608F 8
13		H-CON SET	HP8C FORMATTER EFL
14		H-CON SET	HP8C FORMATTER EFK
15		H-CON SET	HP8C FORMATTER EFA
16		H-CON SET	HP8C FORMATTER EFJ
17		H-CON SET	HP8C FORMATTER EFJ
18		H-CON SET	HP8C FORMATTER EFJ
19		H-CON SET	HP8C FORMATTER EFG
20		H-CON SET	HP8C FORMATTER EFG
21		H-CON SET	HP8C FORMATTER EFM
22		H-CON SET	HP8C JOINT EJP1-PO
23		H-CON SET	HP8C JOINT EJP2-PO
24		H-CON SET	HP8C JOINT EJA1-AU
25		H-CON SET	HP8C FILTER PPU1-P
26		H-CON SET	HP8C FILTER PPU2-E
27		H-CON SET	HP8C AUDIO EAS2-SP
28		H-CON SET	HP8C AUDIO EAS1-SP
29		H-CON SET	HP8C PANEL P1-POWE
30		H-CON SET	HP8C PANEL P6-POWE
31		H-CON SET	HP8C PANEL P5-POWE
32		CORE	KC K5B FS 31X5X12-
33		CLIP CORE	TDK ZCAT3035-1330
34		CLIP CORE	TDK ZCAT2032-0930
35		POWER PWB MTL	HP8C15 SECC T=0.8
36		FITLER SUPPORT MTL	HP8C21 SUS304 T=0.
37		AC MTL (A)	HP8C36 SECC T=0.8
38		POWER SW HOLDER	HP8C46 SECC T=1.0
39		CONTROL HOLDER	MBK32 ABS 94V0
40		POWER BUTTON HOLDER	MCG64 ABS 94V0
41		PANEL SUPPORT (A)	HP8C43
42		PANEL SUPPORT (B)	HP8C44

PRODUCT SAFETY NOTE : Components marked with a ⚠ have special characteristics important to safety. Before replacing any of there components,read carefully,the CAUTION FOR SAFETY of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

SYMBOL No.	PART No.	DESCRIPTION	Spec
43		PANEL SUPPORT (C)	HP8C45
44		RC LENS	HM8C41 PMMA
45		CONTROL BUTTON	MBK32 ABS 94V0
46		POWER BUTTON	MCG64 ABS 94V0
47		HANDGRIP	FOR CARTON R1
48		AIR FILTER (T/B)	HP8C3A PU FOAM 10X
49		AIR FILTER (L/R)	HP8C3A PU FOAM 10X
50		GASKET	HP8C49 6X6X80
51		GASKET	HP8C4A 6X10X80
52		GASKET	HP8C4B 4X2X115
53		GASKET	HP8C4C 4X2X175
54		GASKET	HP8C4E 4X2X26
55		EPE FOAM (B/L)	HP8C18
56		EPE FOAM (B/R)	HP8C19
57		EPE FOAM (T/L)	HP8C1A
58		EPE FOAM (T/R)	HP8C1B
59		BATT	LR6(SN) 2P X WHM 1
60		CARTON	C-HP8C-J88 42PM300E
61		USER'S MANUAL	U-HP8C-J88 FOR EUROPE SILVER
62		IMAGE RETENTION NOTE	F-HP8C-J88 E+F+G+S+NO+SW (EU)
63		EPE BAG	HP8C-K001 42"PDP L
64		PLASTIC RIVET	PR-04A BLACK N66
65		PANEL PC FILM (B)	HP8C25 L=940
66		PANEL PC FILM (R)	HP8C27 L=530
67		CORE HOLDER	HP8C39 PC FILM T=0
68		TL CLAMP	HV2847 NL66
69		SCREW	M4X0.7+10P-ZK+2 WA
70		SCREW SPECIAL	4#-40UNCX12.7 WASH
71		WIRE SET	W7.6X90X4.1D(LOCK)
72		FFC	50P G P0.5 PAD 0.5
73		PWR MODU	MURATA MPF7414 PDP
74		REMO CTRL	SMK (HL01904) SILVER MTR
75		NET WIRE SET	4.3DX95X4.3D 144C/.12 TUBE
76		NET SET	4.3DX45X4.3D 144C/.12 TUBE
77		NET WIR SET	4.3DX15X4.3D 144C/.12 TUBE

THE UPDATED PARTS LIST

FOR THIS MODEL IS

AVAILABLE ON ESTA

PDP MODULE
SERVICE MANUAL

MODEL : PDP42V6####

English

CAUTION

1. BEFORE SERVICING THE PDP MODULE,
   READ THE SAFETY PRECAUTIONS IN THIS MANUAL.
2. WHEN REPLACEMENT PARTS ARE REQUIRED, BE SURE TO USE
   REPLACEMENT PARTS SPECIFIED BY THE MANUFACTURER..

SAFETY PRECAUTIONS

PDP Module is a display device to be divided into a Panel part and a Drive part. The Panel part consists of
Electrodes, Phosphor, various dielectrics and gas, and the Drive part includes electronic circuitry and PCB.
When using/handling this PDP Module, pay attention to the below warning and cautions.

⚠ Warning?

Indicates a hazard that may lead to death or injury if the warning is ignored and the product is handled incorrectly.

⚠ Caution?

Indicates a hazard that can lead to injury or damage to property if the caution is ignored and the product is handled incorrectly.

¥ . WARNING

(1) Do not supply a voltage higher than that specified to this product. This may damage the product and may cause a fire.

(2) Do not use this product in locations where the humidity is extremely high, where it may be splashed with water, or where flammable materials surround it.
Do not install or use the product in a location that does no satisfy the specified environmental conditions. This may damage the product and may cause a fire.

(3) If a foreign substance (such as water, metal, or liquid) gets inside the product, immediately turn off the power.
Continuing to use the product, it is may cause fire or electric shock.

(4) If the product emits smoke, and abnormal smell, or makes an abnormal sound, immediately turn off the power.
Continuing to use the product, it may cause fire or electric shock.

(5) Do not disconnect or connect the connector while power to the product is on. It takes some time for the voltage to drop to a sufficiently low level after the power has been turned off.
Confirm that the voltage has dropped to a safe level before disconnecting or connecting the connector.

(6) Do not pull out or insert the power cable from/to an outlet with wet hands. It may cause electric shock.

(7) Do not damage or modify the power cable. It may cause fire or electric shock.

(8) If the power cable is damaged, or if the connector is loose, do not use the product: otherwise, this can lead to fire or electric shock.

(9) If the power connector or the connector of the power cable becomes dirty or dusty, wipe it with a dry cloth. Otherwise, this can lead to fire.

(10) PDP Module uses a high voltage (Max.450V dc). Keep the cautions concerning electric shock and do not touch the Device circuitry when handling the PDP Unit. And because the capacitor of the Device circuitry may remain charged at the moment of Power OFF, standing by for 1 minute is required in order to touch the Device circuitry.

¥–. CAUTIONS

(1) Do not place this product in a location that is subject to heavy vibration, or on an unstable surface such as an inclined surface. The product may fall off or fall over, causing injuries.

(2) Before disconnecting cable from the product, be sure to turn off the power. Be sure to hold the connector when disconnecting cables. Pulling a cable with excessive force may cause the core of the cable to be exposed or break the cable, and this can lead to fire or electric shock.

(3) This product should be moved by two or more persons. If one person attempts to carry this product alone, he/she may be injured.

(4) This product contains glass. The glass may break, causing injuries, if shock, vibration, heat, or distortion is applied to the product.

(5) The temperature of the glass of the display may rise to 80°C or more depending on the conditions of use.
If you touch the glass inadvertently, you may be burned.

(6) If glass surface of the display breaks or is scratched, do not touch the broken pieces or the scratches with bare hands. You may be injured.

(7) PDP Module requires to be handled with care not to be touched with metal or hard materials, and must not be stressed by heat or mechanical impact.

(8) There are some exposed components on the rear panel of this product. Touching these components may cause an electric shock.

(9) When moving the product, be sure to turn off the power and disconnect all the cables. While moving the product, watch your step. The product may be dropped or all, leading to injuries of electric shock.

(10) In order to protect static electricity due to C-MOS circuitry of the Drive part, wear a wrist band to protect static electricity when handling.

(11) If cleaning the Panel, wipe it with a soft cloth moistened with water or a neutral detergent and squeezed, being careful not to touch the connector part of the Panel. And don't use chemical materials like thinner or benzene.

(12) If this product is used as a display board to display a static image, "image sticking" occurs. This means that the luminance of areas of the display that remain lit for a long time drops compared with luminance of areas that are lit for a shorter time, causing uneven luminance across the display.
The degree to which this occurs is in proportion to the luminance at which the display is used. To prevent this phenomenon, therefore, avoid static images as much as possible and design your system so that it is used at a low luminance, by reducing signal level difference between bright area and less bright area through signal processing.

(13) Because PDP Module emits heat from the Glass Panel part and the Drive circuitry, the environmental temperature must not be over 40°C.
The temperature of the Glass Panel part is especially high owing to heat from internal Drive circuitry. And because the PDP Module is driven by high voltage, it must avoid conductive materials.

(14) If inserting components or circuit board in order to repair, be sure to fix a lead line to the connector before soldering.

(15) If inserting high-power resistor(metal-oxide film resistor or metal film resistor) in order to repair, insert it as 10mm away as from a board.

(16) During repairs, high voltage or high temperature components must be put away from a lead line.

(17) This is a Cold Chassis but you had better use a cold transformer for safety during repairs. If repairing electricity source part, you must use the cold transformer.

(18) Do not place an object on the glass surface of the display. The glass may break or be scratched.

(19) This product may be damaged if it is subject to excessive stresses (such as excessive voltage, current, or temperature). The absolute maximum ratings specify the limits of these stresses.

(20) The recommended operating conditions are conditions in which the normal operation of this product is guaranteed. All the rated values of the electrical specifications are guaranteed within these conditions.
Always use the product within the range of the recommended operating conditions. Otherwise, the reliability of the product may be degraded.

(21) This product has a glass display surface. Design your system so that excessive shock and load are not applied to the glass. Exercise care that the vent at the corner of the glass panel is not damaged.
If the glass panel or vent is damaged, the product is inoperable.

(22) Do not cover or wrap the product with a cloth or other covering while power is supplied to the product.

(23) Before turning on power to the product, check the wiring of the product and confirm that the supply voltage is within the rated voltage range. If the wiring is wrong or if a voltage outside the rated range is applied, the product may malfunction or be damaged.

(24) Do not store this product in a location where temperature and humidity are high. This may cause the product to malfunction. Because this product uses a discharge phenomenon, it may take time to light (operation may be delayed) when the product is used after it has been stored for a long time. In this case, it is recommended to light all cells for about 2 hours (aging).

(25) This product is made from various materials such as glass, metal, and plastic. When discarding it, be sure to contact a professional waste disposal operator.

(26) If faults occur due to arbitrary modification or disassembly, LG Electronics is not responsible for function, quality or other items.

(27) Use of the product with a combination of parameters, conditions, or logic not specified in the specifications of this product is not guaranteed. If intending to use the product in such a way, be sure to consult LGE in advance.

(28) Within the warranty period, general faults that occur due to defects in components such as ICs will be rectified by LGE without charge. However, IMAGE STICKING due to misapplying the above (12) provision is not included in the warranty. Repairs due to the other faults may be charged for depending on responsibility for the faults.

[PDP42V6#### Module]

CONTENTS

¥ . **Formation and Specification of Module**

¥–. **Adjustment**

¥†. **Trouble Shooting**

1. Checking for No Picture

2. Hitch Diagnosis Following Display Condition

2-1. 4/7 or 3/7 of the screen doesn't be shown

2-2. Screen doesn't be shown as Data COF

2-3. It is generated unusual pattern of Data COF IC unit

2-4. Regular Stripe is generated about the quantity of one Data COF IC or more

2-5. Screen doesn't be shown at all as scan COF

2-6. Regular stripe is generated at regular internal on the whole screen

2-7. Data copy is generated to stripe direction

2-8. One or more stripe is generated on the screen

2-9. One or more horizontal line is generated on screen

2-10. Lightness of screen is wholly darken though there is input-signal-pattern

2-11. Different color is shown partially during full-white-screen or electric discharge is generated during full-black-screen

2-12. Full-white pattern it happened that the lightness of middle is darken while full-white pattern

2-13. Some lightness of some color doesn't not generated well

3. Checking for component damage

3-1. Y IPM(IC 12) or Z IPM(IC 4) damage

3-2. FET Ass'y(Y B/D: HS1) damage

3-3. SCAN IC(Y drv B/D: IC1~8) damage

3-4. COF damage

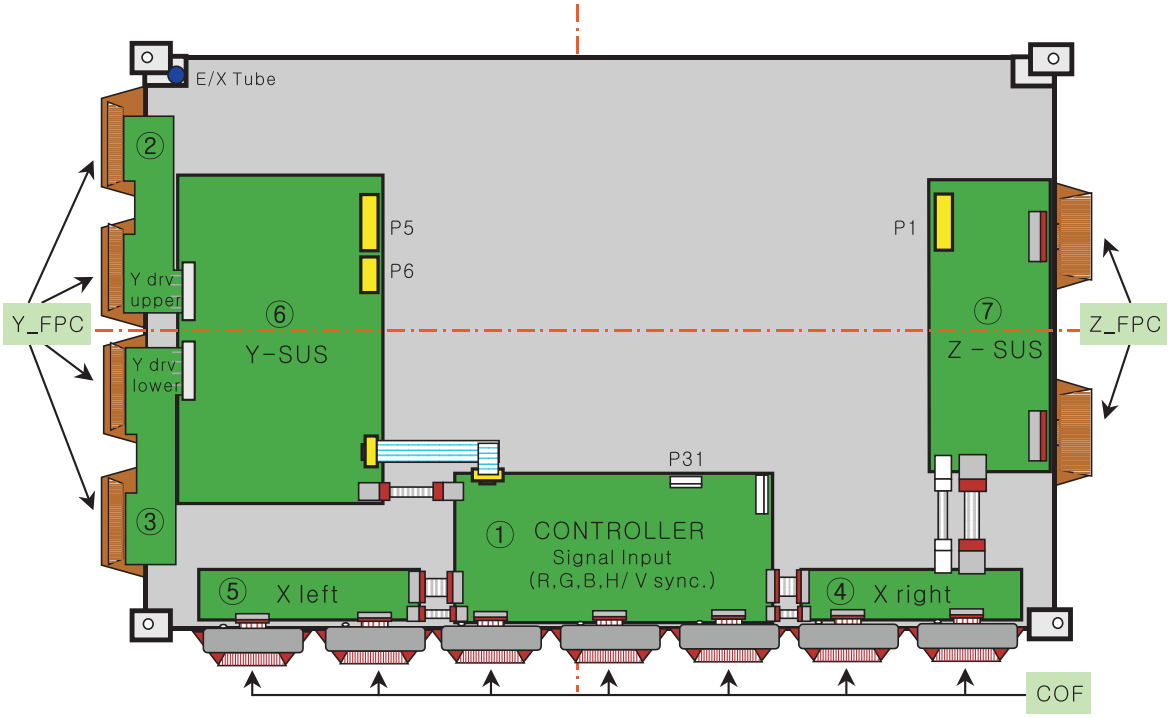
3-5. Crystal(CTRL B/D: X1) damage

¥‡. **Block Diagram**

¥·. **Records of Revision for Boards, components and ROM DATA**

*** Annexing : Schematic Diagram**

¥ . Formation and Specification of Module



English

External Cable Connection

NO	Connector	Input Voltage & Signal
1	P1[Z SUS B/D]	5V, Va, Vs
2	P5[Y SUS B/D]	Vs
3	P6[Y SUS B/D]	5V
4	P31[CTRL B/D]	Video Signal

NO	Part No.		Description
①	6871QCH034A	PWB(PCB) ASSY	LVDS CTRL B/D ASSY
②	6871QDH066A	PWB(PCB) ASSY	Y DRV UPPER B/D ASSY
③	6871QDH067A	PWB(PCB) ASSY	Y DRV LOWER B/D ASSY
④	6871QRH037A	PWB(PCB) ASSY	X RIGHT B/D ASSY
⑤	6871QLH034A	PWB(PCB) ASSY	X LEFT B/D ASSY
⑥	6871QYH029A	PWB(PCB) ASSY	Y SUS B/D ASSY
⑦	6871QZH033A	PWB(PCB) ASSY	Z SUS B/D ASSY

¥–. Adjustment

1. Application Object

This standard is applied to the PDP42V6#### PDP Module which is manufactured by the manufacturing team of PDP promotion department or elsewhere.

2. Notes

(1) Without any special specification, the Module should be at the condition of preliminaries more than 10minutes before adjusting.
- Service signal : 100% Full White signal
- Service DC voltage : Vcc: 5V, Va: 65V, Vs: 185V
- DC/DC Pack voltage : Vsetup: 200V, Vscw: 115V, -Vy: -75V
- Preliminaries environment : Temp (25±5°C), Relative humidity (65±10%)

(2) Module should get the Aging for the equilibrium after finish the assembling. Aging condition is shown below.
- Service signal: 100% Full White, Red, Green, Blue pattern signal(Service time of each pattern : within 5minutes/cycle)
- Service DC voltage : Match the voltage with the set up voltage in the first adjustment.
- Aging time : More than 4Hrs
- Aging environment : Temp (60±2°C), Relative humidity- Less than 75%

(3) Module adjustment should be followed by below sequence.
- Setting up the initial voltage and adjusting the voltage wave form of Vsetup
- Measuring the Margin of Vs voltage and deciding the voltage
- Adjusting and checking the voltage of DC/DC pack (Vsetup, Vscw, -Vy)
- Adjusting the voltage wave form of Vset-down
- Measuring the Margin of Vset-up voltage and deciding the voltage
- Adjusting the wave form of final voltage

But, these items above can be changed by the consideration of mass production. (When changing the sequence, there should be an agreement of the Module development 2Gr./ QA Gr./ Manufacturing Gr.)

(4) Without any special specification, you should adjust the Module in the environment of Temp (25±5°C) and Relative humidity (65±10%)

Caution) If you let the still image more than 10 minutes(especially The Digital pattern or Cross Hatch Pattern which has clear gradation), after image can be presented in the black level part of screen.

3. Adjustment items

3-1. Adjusting the Board Group

(1) Adjusting the voltage wave form of Vset-up
(2) Adjusting the voltage wave form of Vset-down
(3) Adjusting the voltage wave form of Vramp

3-2 Adjustment after assembling

(PDP Module adjustment)

(1) Setting up the initial voltage and adjusting the voltage wave form of Vsetup
(2) Measuring the voltage Margin of Vs and deciding the voltage
(3) Adjusting and checking the voltage of DC/DC pack (Vsetup, Vscw, -Vy)
(4) Adjusting the voltage wave form of Vset-down
(5) Measuring the Margin of Vset-up voltage and deciding the voltage
(6) Adjusting the wave form of final voltage

4. Adjusting the Board Group

(Applying the Jig Set)

4-1. Using Tools

(1) Digital oscilloscope : More than 200MHz
(2) DVM(Digital Multimeter) : Fluke 87 or similar one
(3) Signal generator : VG-825 or similar one
(4) DC power supply
- DC power supply for Vs (1) : Should be changeable more than 0-200V/ more than 10A
- DC power supply for Va (1) : Should be changeable more than 0-100V/ more than 5A
- DC power supply for 5V (1) :Should be changeable more than 0-10V/ more than 10A
- DC-DC Converter Jig (1) : The Jig which has voltage equivalent output of PDP42V6#### Module after taking the Vs, Va, 5V voltage
- Voltage stability of power supply : Within ±1% for Vs/Va, within ±3% for 5V

4-2. Connection diagram of measuring instrument and setting up the initial voltage

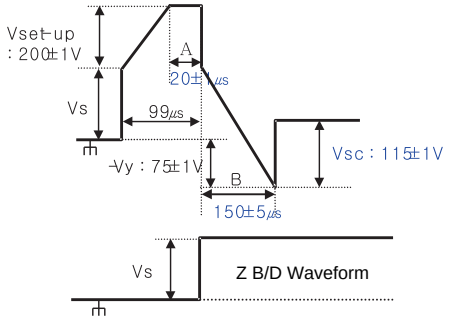
(1) Connection diagram of measuring instrument
Refer to Fig. 1.(Connection diagram of measuring instrument that adjusting the voltage wave form)

(2) Setting up the initial voltage
Initially setting up voltage : Vcc: 5V, Va: 65V, Vs: 185V
But, Initially setting up voltage can be changed by the set up range according to the Module's characteristic.

4-3. How to Adjust

(1) Adjusting the Voltage Wave form of Vsetup
- ¤ Connect measuring instrument like the connection diagram Fig. 1.
- ¤Ł Turn on the power of the measuring instrument like the <Caution> item Fig. 1.
- ¤Ø Connect the oscilloscope probe to P4 connecter(80 Pin) of Y-SUS PCB and GND.
- ¤Œ Turn the VR1 of Y-SUS PCB and make the "A" wave form Fig. 2 to be 20±1μs.

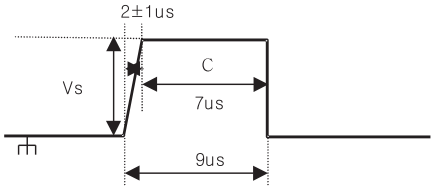
(2) Adjusting Vset-down Voltage Wave form
Turn the VR2 of Y-SUS PCB and make the “B” wave form Fig. 2 to be 150±5μs.



(Fig. 2) Y, Z set-up Waveform

(3) Adjusting the Voltage Wave form of Vramp
- ¤ Connect oscilloscope Probe to the B37 Pin on Z PCB and the GND.
- ¤Ł Turn the VR3 of Z PCB and make the “C“ wave form Fig. 3 to be 7μs.

But, in case of not setting up the Test point, produce same output and adjust wave form connect to other pattern or parts which has no possibility of short.



(Fig. 3) Z ramp Waveform

5. Adjustment after Assembling

(PDP Module Adjustment)

5-1. Using Tools

(1) Digital oscilloscope : More than 200MHz
(2) DVM(Digital Multimeter): Fluke 87 or similar one
(3) Signal generator: VG-825 or similar one
(4) DC power supply
- DC power supply for Vs (1) : Should be changeable more than 0-200V/ more than 10A
- DC power supply for Va (1) : Should be changeable more than 0-100V/ more than 5A
- DC power supply for 5V (1) : Should be changeable more than 0-10V/ more than 10A
- DC-DC Converter Jig (1) : The Jig which has voltage equivalent output of PDP42V6#### Module after taking the Vs, Va, 5V voltage
- Voltage stability of power supply : Within ±1% for Vs/Va, within ±3% for 5V

5-2. Connection diagram of measuring instrument and setting up the initial voltage

(1) Connection diagram of measuring instrument
Refer to figure 1. (Connection diagram of measuring instrument that adjusting the voltage wave form)

(2) Setting up the initial voltage
Initially setting up voltage : Vcc: 5V, Va: 65V, Vs: 185V

But, Initially setting up voltage can be changed by the set up range according to the Module’s characteristic.

5-3. How to Adjust

(1) Adjusting initial voltage wave form

Check the voltage wave form like the mentioned way on the 4-3(How to adjust) and readjust the wave form when it is wrong.

(2) Checking the DC/DC pack voltage

- ¤ Convert the signal of signal generator to the 100% Full White signal
- ¤Ł Connect the GND terminal of DVM to the R30’s right leg of the Y B/D and set the Plus terminal to the left leg of R30 to check the Vscw voltage(115±1V) and when there is abnormality in voltage turn the variable resistor(VR5) of DC/DC Pack(Vscw) on Y B/D to adjust.
- ¤Ø Connect the GND terminal of DVM to the R31’s right leg of the Y B/D and set the Plus terminal to the left leg of R31 to check the -Vy voltage(-75±1V) and when there is abnormality in voltage turn the variable resistor(VR6) of DC/DC Pack(-Vy) on Y B/D to adjust.
- ¤Œ Connect the GND terminal of DVM to the R27’s right leg of the Y B/D and set the Plus terminal to the left leg of R27 to check the Vsetup voltage(200±1V) and when there is abnormality in voltage turn the variable resistor(VR4) of DC/DC Pack(Vsetup) on Y B/D to adjust.

English

(3) Measuring the Vs voltage Margin and deciding the voltage

¤ Convert the signal of signal generator to the 100% Full Red signal.

¤Ł Turn the voltage adjusting knob of Vs DC power supply to the voltage -down direction and make the cell of screen turned off.

¤Ø Turn the voltage adjusting knob of Vs DC power supply to the voltage -up direction until the cell of screen turned on.
The first voltage, which make the cell of full screen turned on, is named as Vsmin1 and record it.

¤Œ Turn the voltage adjusting knob of Vs DC power supply to the voltage-up direction slowly until the cell of screen turned off or over electric discharge.
The first voltage, which makes the cell of screen turned off or over electric discharge, is named as Vsmax1 and records it. (Only, Vs voltage variable passes over the maximum 190V)

¤º Convert the signal of signal generator to the 100% Full Green signal.

¤ Repeat the adjustment (2) item and name each voltage as Vsmin2/Vsmax2 and record them.

¤ Convert the signal of signal generator to 100% Full Blue signal.

¤ Repeat the adjustment (2) item and name each voltage as Vsmin3/Vsmax3 and record them.

¤ Convert the signal of signal generator to 100% Full White signal.

¤ Repeat the adjustment (2) item and name each voltage as Vsmin4/Vsmax4 and record them.

¤æ Convert the signal of signal generator to 100% Full Black signal.

¤ Repeat the adjustment (2) item and name each voltage as Vsmin5/Vsmax5 and record them.

¤ At this time decided Vs voltage adds 6V to Max value(Vsmin1~Vsmin5) and set up the voltage within the set-up range(180V < Vs ≤ 190V) in consideration of other features.

¤ Turn the voltage adjusting knob of Vs DC power supply make deciding the Vs voltage.

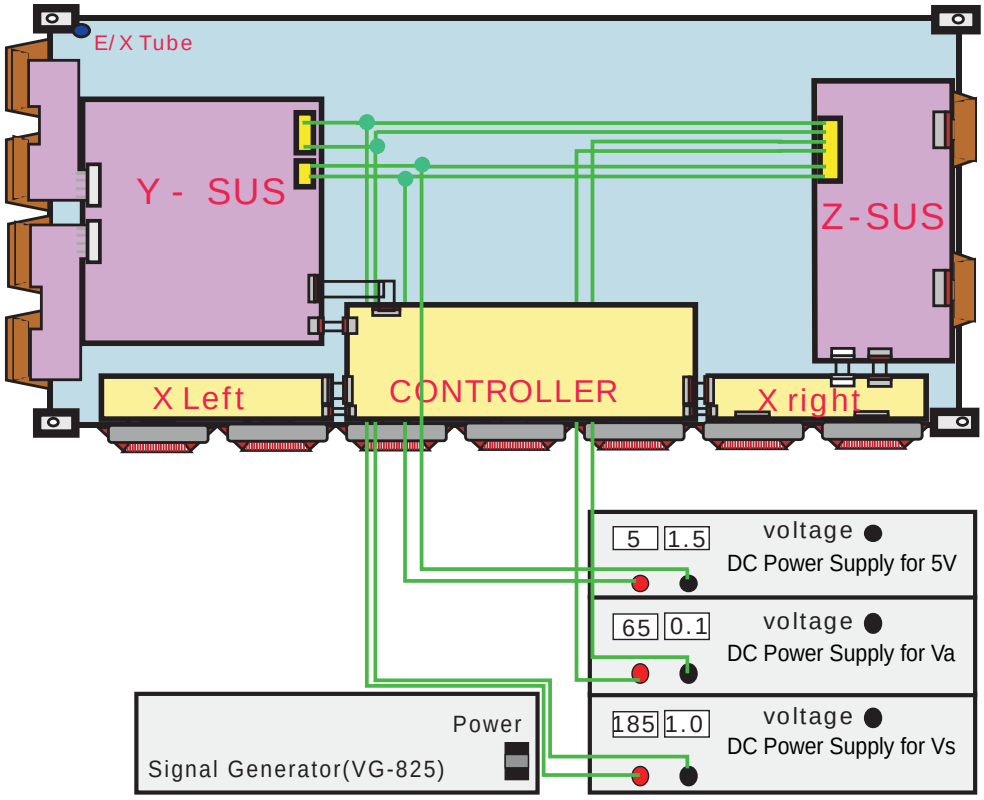
¤ı Adjust Vset-down wave form using setting up Vs voltage like mentioned on the 4-3.

(4) Adjusting the final voltage wave form

Check the voltage wave form like the mentioned way on the 4-3(How to adjust) and readjust the wave form when it is twisted.

(5) DC-DC Pack Voltage Set up Range

Vsetup : 185V ~ 225V
Vsc : 90V ~ 120V
-Vy : -60V ~ -80V



<Caution>

(1) The power of the signal generator should be turned on before turning on the power of DC power supply.
(2) The voltage of DC power supply , in standard of Module input voltage, should be preset as below.
Vcc: 5V, Va: 65V, Vs: 185V
(3) The power of power supply must turned on by this sequence. Reverse direction When turning off.
* Module on : 5V ⟹ Va ⟹ Vs, Module off: Vs ⟹ Va ⟹ 5V
(4) Signal generator should be selected with 852*480(WVGA) mode

(Fig. 1) Connection diagram of measuring instrument

English

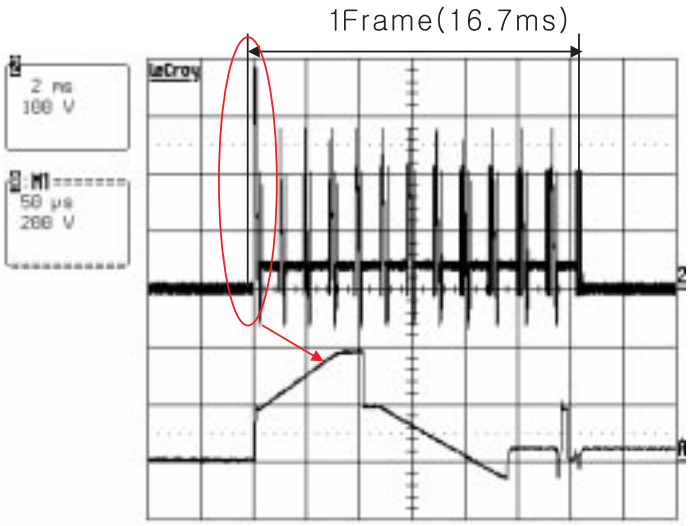
¥†. Trouble Shooting

1. Checking for no Picture

A screen doesn't display at all and condition of black pattern or power off.

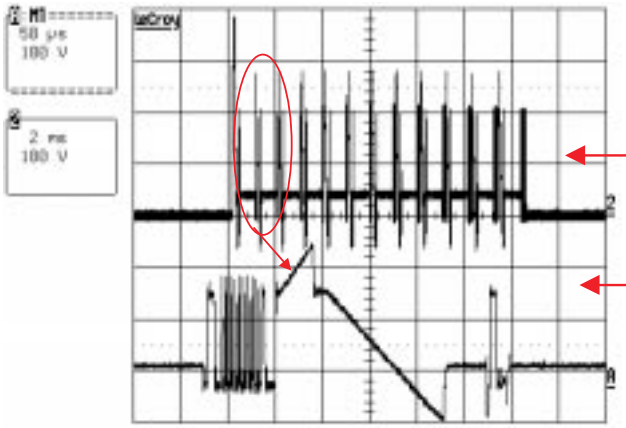
(1) Check whether the CTRL B/D LED(D10, D11, D12, D13, D17) is turned on or not.
(2) Check the power and signal cable of CTRL B/D.
(3) X B/D, Y B/D, Z B/D is well plugged in.
(4) Check the connection of X B/D, Y B/D and Z B/D to CTRL B/D.
(5) Measure the output wave of X, Y, Z B/D with oscilloscope(more than 200MHz)
and find the trouble of B/D by comparing the output wave with below figure.
- Measure Point fo Y B/D : TP(Bead B103)
- Measure Point fo Z B/D : TP(Bead B37)
- Measure Point fo X B/D : COF TP

(6) Check the SCAN(Y side) IC
(7) Check the DATA(X side) COF IC
(8) Replace the CTRL B/D.



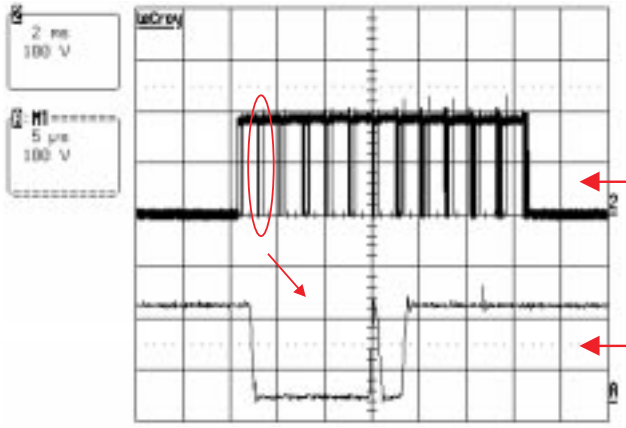
<A: Y B/D Output wave - 1 FRAME>

<B: Y B/D Output wave - 1 SF>



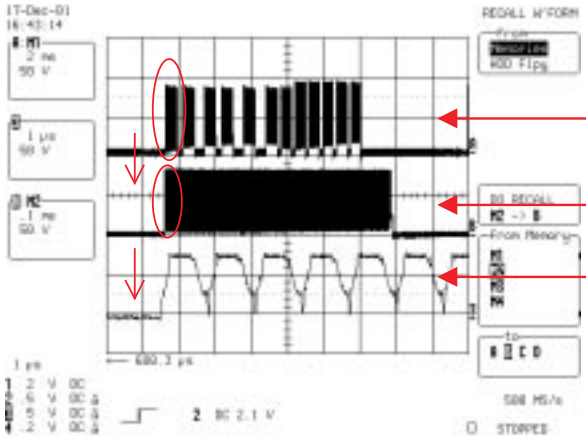
<A: Y B/D Output wave - 1Frame>

<B: Y B/D Output wave - 2~12 SF>



<A: Z B/D Output wave - 1Frame>

<B: Z B/D Output wave - 1SF>



<X B/D Output wave - 1 FRAME>

<X B/D Output wave - 1 SF>

<X B/D Output wave - Enlargement>

English

2. Hitch Diagnosis Following Display Condition

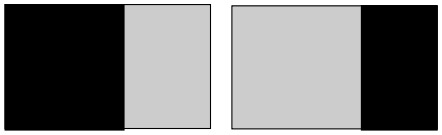
2-1. 4/7 or 3/7 of the screen doesn't be shown

(1) Confirm the power connector of X B/D is well plugged in which is correspond to not showing screen.
(2) Confirm the connector that is connected between CTRL B/D and X B/D correspond to not showing part.
(3) Replace relevant X B/D.

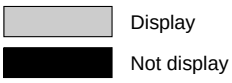
⁕ Relationship between screen and X B/D

Screen			X B/D
Left of the Screen	4/7	<-->	Right X B/D
Right of the Screen	3/7	<-->	Left X B/D

⁕ Screen Display Form



Left of the Screen(4/7) Right of the Screen(3/7)



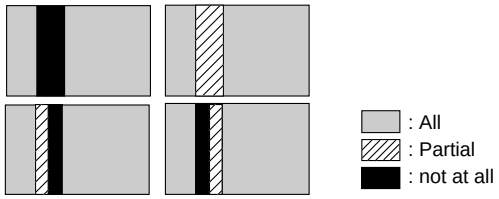
2-2. The screen doesn't be shown as Data COF

(Include not be shown part of Data COF quantity or a part)

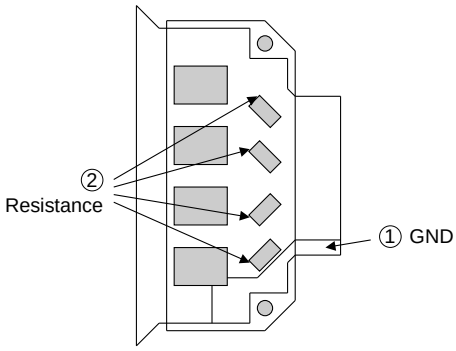
(1) The problem between Data COF and X B/D is more possible that the screen is not be shown as data COF.
(2) Confirm the connector of Data COF is well connected to X B/D. Correspond to the part that screen is not showing
(3) Confirm whether the Data COF is failed and replace X B/D

⁕ Example of the screen display form

(Anything of the 7 Data COF can be shown beside below pictures)



⁕ How to examine Data COF IC

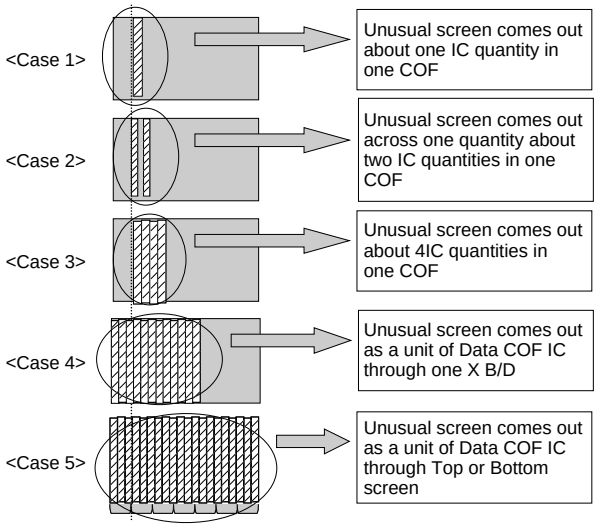


- Change ' ① GND' into ANODE, ' ② Resistance' into CATHOD and then examine the Diode to the forward or reverse direction.
- Measure the resistance value(10Ω)

2-3. It Generates Unusual Pattern of Data COF IC unit

(1) In case of generating unusual pattern of Data COF IC unit as below picture, there is problem in the check that is input into Data COF IC
(2) In case of <case 1, 2, 3>
- confirm the connection of Data COF connector
- replace the relevant X B/D
(3) In case of <case 4, 5>
- confirm the connector that is connected from CTRL to X B/D
- Replace relevant XB/D or CTRL B/D

⁕ Screen Display Form


<Case 1>
Unusual screen comes out about one IC quantity in one COF
<Case 2>
Unusual screen comes out across one quantity about two IC quantities in one COF
<Case 3>
Unusual screen comes out about 4IC quantities in one COF
<Case 4>
Unusual screen comes out as a unit of Data COF IC through one X B/D
<Case 5>
Unusual screen comes out as a unit of Data COF IC through Top or Bottom screen

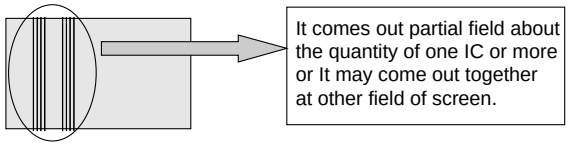
2-4. Regular Stripe is Generated about the Quantity of one Data COF IC or more

(1) In case of generating regular stripe about the quantity of one Data COF IC, there is problem at the output of output-flatworm of X B/D
In case of generating regular stripe about the quantity of two Data COF IC, that means the data which is conveyed from CTRL B/D doesn't conveyed well.
(2) Confirm the XB/D connection connector plugged in well. Correspond to unusual screen.
(3) Replace relevant XB/D or CTRL B/D.

⁕ Relationship between screen and X B/D

Screen			X B/D
Left of the Screen	4/7	<-->	Right X B/D
Right of the Screen	3/7	<-->	Left X B/D

⁕ Screen Display Form

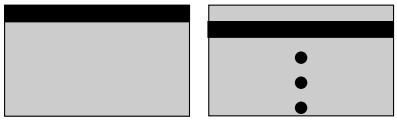


English

2-5. The screen display has a problem for Scan FPC.

(1) It's may be a problem between Scan FPC and Y B/D.
(2) Check the connection of Y B/D and Scan FPC.
(3) If the Scan IC is failed, replace the Y DRV B/D.

⁕ Screen Display Form



The screen display is very good
The screen display is poor

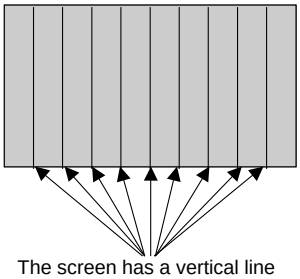
⁕ Check a method of SCAN IC

Change the Vpp Pin into ANODE and GND Pin into CATHOD and then test the Diode with forward or reverse direction.

2-6. The screen has a vertical line with regular gap. (A vertical stripe flash at especial color)

(1) This is a problem about control B/D.
(2) Replace Control B/D.

⁕ Screen Display Form



The screen has a vertical line with regular gap

2-7. A data copy is happened into vertical direction

(1) In this case, it's due to incorrect marking of scan wave.
(2) Replace a Y DRV B/D or Y SUS B/D.

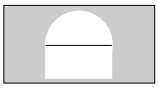
⁕ Screen Display Form

<Display Pattern>

<Case 1 : Entire Copy>

<Case 2 : Top Copy>

<Case 3 : Bottom Copy>

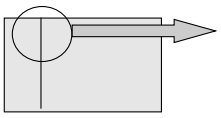

<Case 4 : Entire Copy>

2-8. The screen has one or several vertical line

(1) In this case, It isn't a problem about controller B/D or X B/D.
(2) It may cause followings.
- It's out of order a panel
- Open or short of DATA COF FPC attached panel
- It's out of order a DATA COF attached panel

(3) Replace Module.

※ Screen Display Form



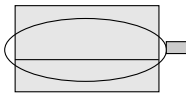
It may show several vertical lines in a quarter or other division part of screen including left case.

2- 9. The screen has one or several horizontal line

(1) In this case, it isn't a problem about controller B/D or X B/D.
(2) It may cause followings.
- It's out of order a panel
- Open or short of SCAN FPC attached panel
- It's out of order a SCAN IC attached panel

(3) Replace Y DRV B/D

※ Screen Display Form



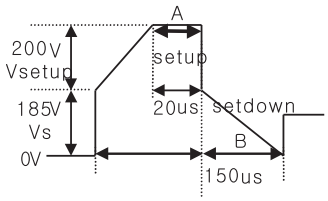
It may show several horizontal lines including left case.

2-10. The screen displays input signal pattern but the brightness is dark

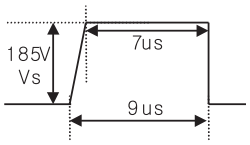
(1) In this case, Z B/D operation isn't complete.
(2) Check the power cord of Z B/D.
(3) Check the connector of Z B/D and Controller B/D.
(4) Replace the Controller B/D or Z B/D.

2-11. The screen displays other color partially on full white screen or happens discharge partially on full black screen.

(1) Check the declination of Y B/D set up, set down wave.
(2) Check the declination of Z B/D ˙ ramp wave.
(3) Measure each output wave with oscilloscope(more than 200MHz) and compare the data with below figure data.
Adjust the Y B/D set up(Test-up:B/C[¥s/¥s])/setdown(Test-down:D[¥s]) and Z B/D ramp(Tramp:F/G[¥s/¥s]) declination by changing VR1/VR2/VR3.
- Measuring Point of Y B/D : B103(SUS_UP)
- Measuring Point of Z B/D : B37(SUS_OUT)



Y Output Voltage Wave form



Z RAMP Voltage Wave form

English

2-12. A center of screen is darker than a edge of screen at full white pattern.

(1) In this case, it's a problem about Z B/D ramp wave.
(2) Check the connection cable of Z B/D and CTRL B/D.
(3) Replace the Z B/D.

※ Screen Display Form

2-13. It doesn't display a specified brightness at specified color

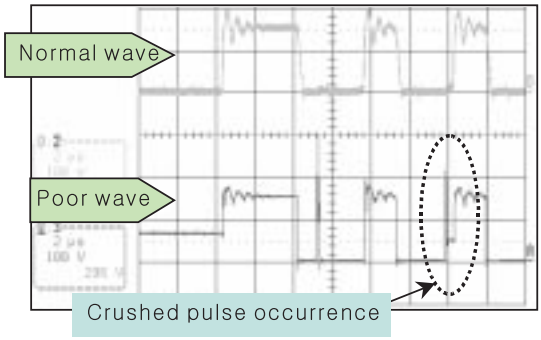
(1) Check the connector of CTRL B/D input signal.
(2) Replace the CTRL B/D.

3. Checking for component damage

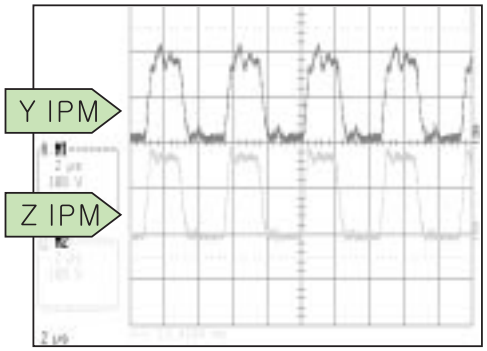
3-1. Y IPM(IC 12) or Z IPM(IC 4) damage

(1) When the internal Sustain_FET of Y IPM(IC 12) or Z IPM(IC 4) is damaged, screen doesn't be shown or electric discharge is generated.
- Test Point: GND~B103(Y B/D), GND~B37(Z B/D)
- Wave format: B103(Y B/D) or B37(Z B/D)has no wave output

(2) When the internal ER_FET of Y IPM(IC 12) or Z IPM(IC 4) is damaged, Y IPM or Z IPM emission is increased.
- Test Point: GND~B103(Y B/D), GND~B37(Z B/D)
- Wave format: As shown (Fig. 1)



(Fig. 1) When the ER_FET is damaged

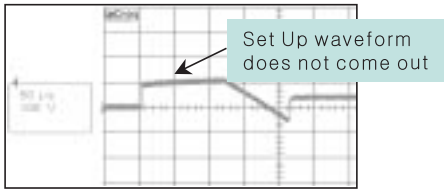


<IPM Normal Output Wave >

- Measurance position: Sustain section enlarge the after measuring B103 wave of Y B/D and B37 wave of Z B/D. (Full White Pattern)

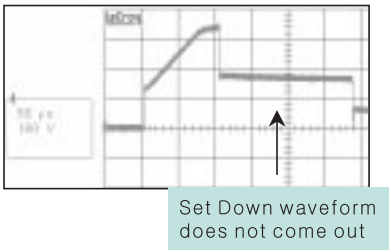
3-2. FET Ass'y(Y B/D: HS1) damage

(1) When Set_Up FET is damaged, screen doesn't be shown
- Test Point: Enlarge the after measuring GND~B103(Y B/D)
- Wave format: As shown (Fig. 2)

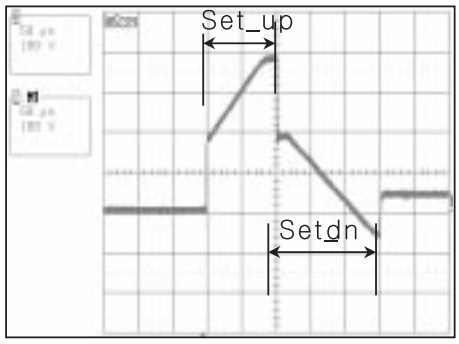


(Fig. 2) When the Set_Up FET is damaged

(2) When Set_Down FET is damaged, electric discharge of entire screen is generated.
- Test Point: Enlarge the after measuring GND~B103(Y B/D)
- Wave format: As shown (Fig. 3)



(Fig. 3) When the Set_Down FET is damaged



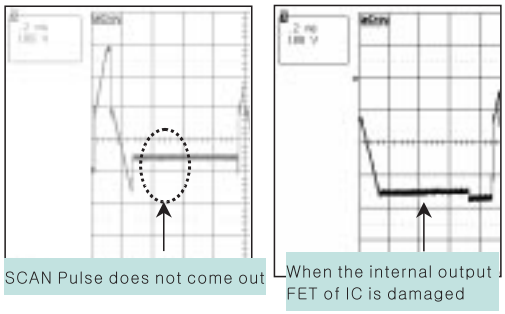
<FET Ass'y Normal Output Wave >

- Measurance position: Reset section enlargement wave of TP B103(Y B/D) (Full White Pattern)

English

3-3. SCAN IC(Y drv B/D: IC1~8) damage

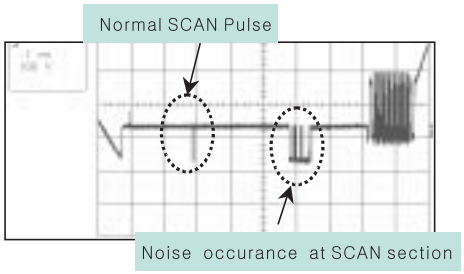
(1) In case of SCAN IC poor, one horizontal line may open at screen.
- Test Point: ICT measurance of GND~Y drive B/D output
- Wave format: As shown (Fig. 4)



(Fig. 4) When SCAN IC is poor

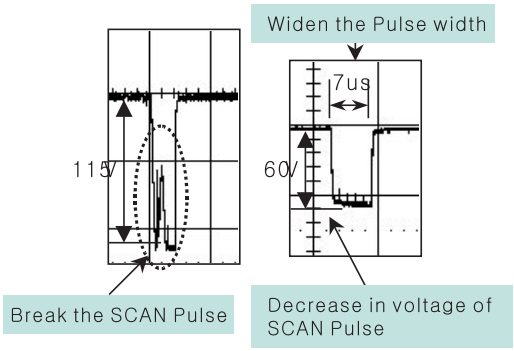
(2) Screen may not shown when SCAN IC is damaged by SCAN IC poor, external electricity or spark.
- Test Point: ICT measurance of GND~Y drive B/D output
- Wave format: Output wave format isn't output (You can see the damage for Y drive B/D Top or Bottom's SCAN IC)

(3) Screen shaked horizontally when Y drv B/D Top and Bottom cable is poor
- Test Point: ICT measurance of GND~Y drive B/D output
- Wave format: As shown (Fig. 5)

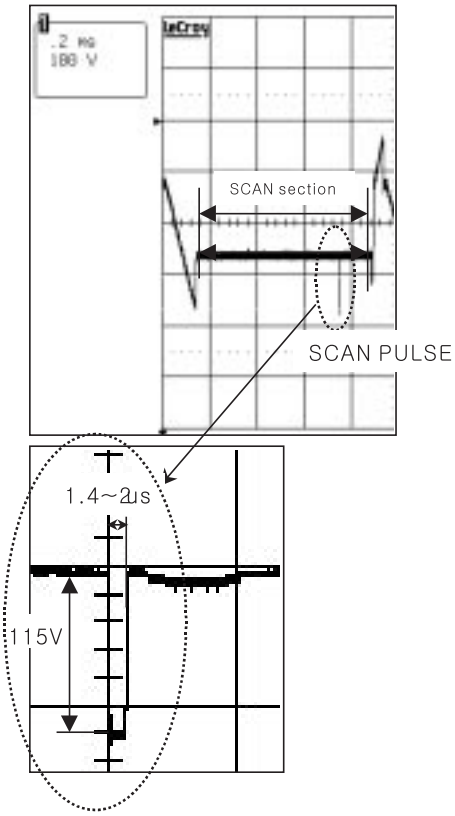


(Fig. 5) When Y drv B/D Top and Bottom cable is poor

(4) In case of shorting the SCAN IC output by a dust, foreign substance, it may overlap two horizontal lines on screen.
- Test Point: ICT measurance of GND~Y drive B/D output
- Wave format: As shown (Fig. 6)



(Fig. 6) When SCAN IC output is short

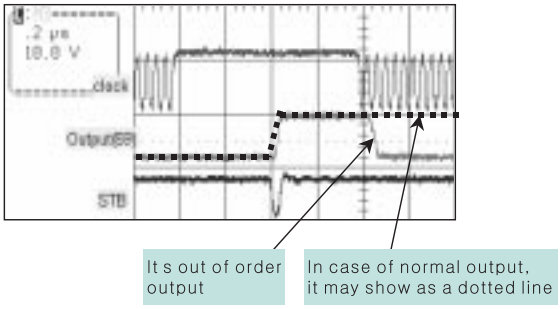


<SCAN IC Normal Output Wave >

- Measurance position: SCAN section enlarge the after measuring output ICT of Y drive B/D. (Full White Pattern)

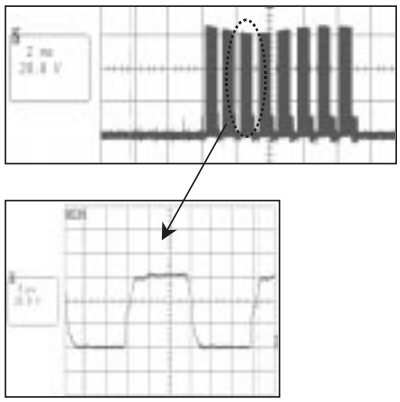
3-4. COF damage

(1) In case of shorting or opening the IC output of COF, it may show one or several vertical lines.
- Test Point: Enlarge the after measuring output TP of GND~COF
- Wave format: As shown Output of (Fig. 7)
  In case of normal wave output, when STB signal is generated, maintain High output. And when STB signal is generated again must be fall Low.
  But when IC of COF is poor, STB signal is not generated Output falls with Low.



(Fig. 7) When IC output of COF is poor

(2) In case of being damage IC of COF or power resistance, the screen doesn't be shown or happens discharge partially.
- Test Point: Enlarge the after measuring output TP of GND~COF
- Wave format: Output wave doesn't come out



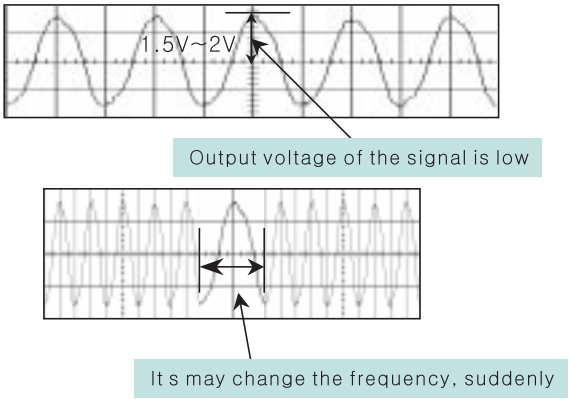
<COF Normal Output Wave >

- Measurance position: Enlarge the after measuring output TP of COF (Full White Pattern)

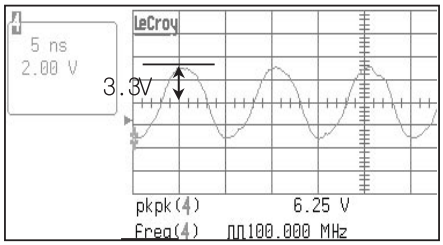
3-5. Crystal(CTRL B/D: X1) damage

(1) When Crystal is damage, the screen doesn't be shown.
- Test Point: Measuring 3pin of GND~Crystal(Ctrl B/D: X1)
- Wave format: Output wave doesn't come out

(2) In case of unusual launch of the Crystal, it may blink the screen.
- Wave format: As shown (Fig. 8)



(Fig. 8) When Crystal is poor

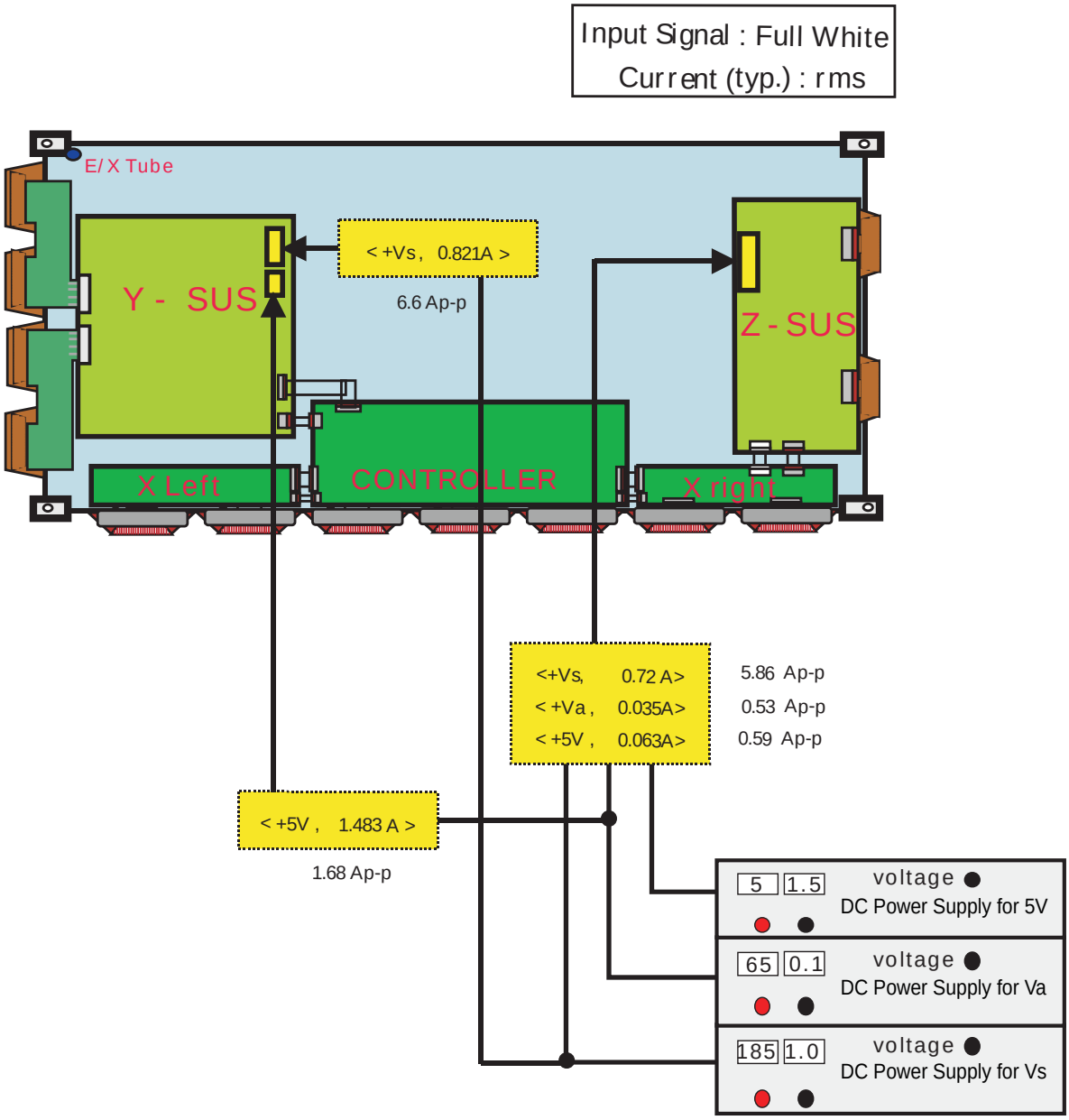


<Crystal Normal Output Wave >

- Measurance position: Measuring output 3pin of Crystal(X1: 100MHz) on Ctrl B/D (Full White Pattern)

English

¥‡ Block Diagram



¥·. Records of Revision for Boards, components and ROM DATA

1. Boards

No.	Date	Board	Part Number	Note
1	2004.01.21	CTRL B/D ASSY(LVDS)	6871QCH034A	Initial Product
2	2004.01.21	YDRV Upper B/D ASSY	6871QDH066A	Initial Product
3	2004.01.21	YDRV Lower B/D ASSY	6871QDH067A	Initial Product
4	2004.01.21	Y SUS B/D ASSY	6871QYH029A	Initial Product
5	2004.01.21	Z SUS B/D ASSY	6871QZH033A	Initial Product
6	2004.01.21	X RIGHT B/D ASSY	6871QRH037A	Initial Product
7	2004.01.21	X LEFT B/D ASSY	6871QLH034A	Initial Product
8	2004.02.23	CTRL B/D ASSY(LVDS)	6871QCH034A	COF Resistor added
9	2004.02.23	Y SUS B/D ASSY	6871QYH029A	R90, R91, C33, P5, P6 changed
10	2004.02.23	Z SUS B/D ASSY	6871QZH033A	C7 added
11	2004.02.23	X RIGHT B/D ASSY	6871QRH037A	4 layers changed
12	2004.02.23	X LEFT B/D ASSY	6871QLH034A	4 layers changed

English

2. COMPONENTS

No.	Date	COMPONENT	Part Number	Remark
1	2004.01.21	Y IPM(Y B/D: IC 12)	4921QP1023A	Initial Product Apply to DRIVER IC: IR2113S
2	2004.01.21	Z IPM(Z B/D: IC 4)	4921QP1024A	Initial Product Apply to DRIVER IC: IR2113S
3	2004.01.21	FET(Y B/D: HS1)	4921QF2004A	Initial Product Set_up/Set-dn FET Ass'y
4	2004.01.21	COF	0ILNRAZ015D	Initial Product Check the inner resistance in 0 Ohm
5	2004.01.21	Crystal(CTRL B/D: X1)	6212AB4004A	Initial Product
6	2004.01.21	SCAN IC(Y drive B/D: IC1~8)	0ILNRMA011A	Initial Product Matsushida: AN16001A
7	2004.03.01	COF	0ILNRHS001A	Check the inner resistance in 10 Ohm
8	2004.04.05	SCAN IC(Y drive B/D: IC1~8)	0ILNRTI020A	TI: SN755866
9	2004.04.05	Y IPM(Y B/D: IC 12)	4921QP1025A	Apply to DRIVER IC: IXYS
10	2004.04.05	Z IPM(Z B/D: IC 4)	4921QP1026A	Apply to DRIVER IC: IXYS

3. ROM DATA

No.	Date	ROM Data Version	Contents
1	2004.02.18	42V62MS01	Initial ROM Data for DND
2	2004.02.18	42V62JN01	Initial ROM Data for HTC

English

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